OTHER WORLDS

MAY
1953
35¢

POWER METAL S. J. Byrne

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The People Who Make OTHER WORLDS

No. 13

STUART J. BYRNE

THERE seems to be some doubt that I was born—if remarks made at the Tenth World Science-Fiction Convention in Chicago are to be considered. Either S. J. Byrne was a house name, or I was Richard Shaver ghost writing for Ray Palmer, or Ray Palmer, himself, or just a plain ghost. Actually, some faces turned pale when I was introduced.

Well, to set you on the rick track, I *was* born. But why go into that?

What counts is science-fiction. I existed twelve long years until I was inoculated with good old *stf*. After that, I lived. Life has been worth while ever since—in spite of several decades cluttered up with the confetti I've made out of rejection slips and trunks full of no good manuscripts. By actual count, I wrote over a million words before some editor took pity on me, back in 1935.

Science-fiction was a lovely disease. It was an inescapable addiction. I remember working my way through college and graduate school by working at a job of hard labor all night. I went to school in the daytime. I dropped dead every afternoon at three and got up at seven P.M. to eat and go to work again. But I had a little closet in which there was a typewriter—and science-fiction still

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OTHER WORLDS

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....Editorial...

ON the opposite page you will see an illustration by Charles Hornstein, our latest artist-discovery. You've already seen quite a bit of his work, but you are going to see a lot more. We predict that he will advance to very high regard as a science fiction illustrator. But we suppose you are wondering why we use one of his illustrations in the editorial column? Well, there's a story behind that, and we might as well tell it. . . .

We have trouble illustrating stories! How, you ask, could there be any trouble that way? You have the story right there before you, it is chockful of action scenes, and you just pick out the most exciting and ask the artist to put it down on illustrating board. Do any of you remember the story Poe once wrote; a terror thing in which the character (and there was only one) did nothing but sit in an empty room and wait for something that you never did get to see? Well, that was full of suspense, a really classic job of writing. But how illlustrate it? There is only one scene—the man sitting in the chair, looking terrified. An artist can go to town on that! Or can he? Remember, the reader will see the illustration first, and won't know there is a menace. He will only see an expression on a face, and maybe he'll interpret it to mean the fellow has a bellyache. Or he's making faces at his stepmother who locked him in for stealing cookies. The expression the artist arrives at may be something ludicrous. Funny how far an artist can miss the boat when you say "depict terror." Especially on a woman's face. He opens her mouth, and you'd swear she was belching. The reader can't see what she's terrified at—and reading faces is very hard, and even harder when an artist looks into a mirror, registers fright, and does a self-portrait.

We've tried giving the artist the story to read. And we fall flat on our backs when we see the result. Some artists, like Cartier, can make you leap for joy with their interpretations. Others, like . . . make you want to behead them. You argue to yourself that IF the artist read the story, HOW can he do THAT illustration?

Anyway, it's tough. So, since for many years we've been buying covers and having stories written around them (because of the foregoing difficulties—and covers are mighty important), we decided maybe we could do the same with illustrations. And suddenly we've learned something. We have discovered a new springboard to really new ideas in science fiction. Not "new" ideas, really, but new treatment of old ideas. We (writers) see things as "ithers" see them,

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and the result is a revelation. You'll see some of these stories soon, and we predict you'll find them very good. And for one thing, you'll find that the illustration *exactly* fits the story. What a hue and cry has gone up in the past when illustrations destroyed all the reality in the story by not fitting the facts in the text!

But to get back to the illustration herewith, we *personally* tried to do a story around it. Yes, you guessed it, we failed. Who do you see? Why, it's Zeus, or Thor, driving across the heavens with his pair of hunting gryphons! What *else!* And the expression on his face—it's lusty, boisterous mirth (or is it a savage snarl of god-anger?). And *why* is he driving hell-bent for leather? Well, maybe he's just drunk! Or going "Ho! Ho!" as he spurs his warrior maids on to battle.

Yes, you know the story that will result! We know it too. And you have read it a dozen times from guys like Berkeley Livingston—wonder whatever happened to Berk?—Bill McGivern, Ray Palmer, and Richard Shaver! You won't want to read it *again*.

Well, we've got the illustration. We like it. So we're running it. And here's what we'll do . . . we'll pay $25.00 for the best letter to the editor telling us what's doing in this illustration. What sort of expression IS that

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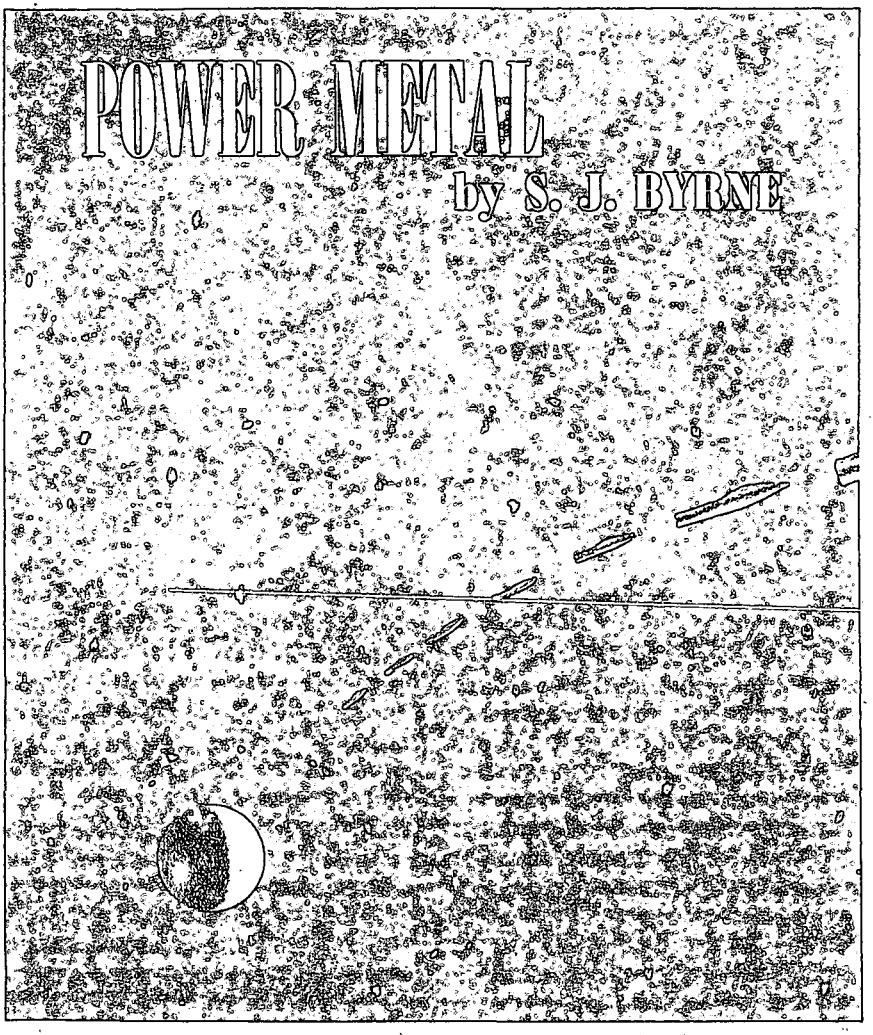
POWER METAL

by S. J. BYRNE



Like a voice from the Past, the old cry of "Taxation without representation" rang out. Teran resented the oppression of Mother Earth, and Cosmium—The Metal of Power—was the spark which flared their resentment into open rebellion. Across this background two men fought a duel that used planets, peoples, and the rebellion itself as weapons in their bitter struggle.

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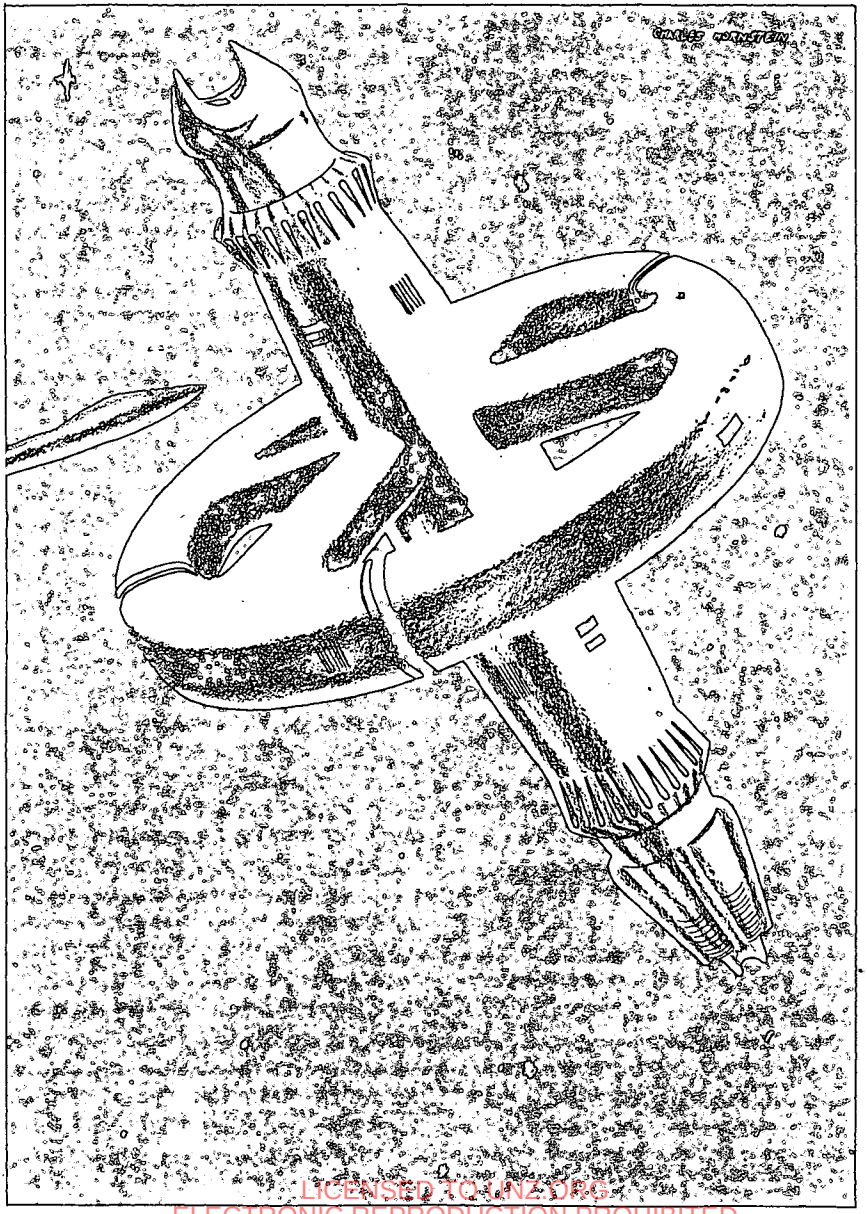

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Part I of III

CHAPTER I

THE Governor's agent finally stamped the visa to Sol. Even after stamping it he sent Buchanan's monitor card through the cyberlector at his elbow and watched the shimmering indicators with a sullen deliberation. When it popped out in the acceptance chute he looked it over critically, as though his eye could detect a possible error punched in by the psychomonitor. He tapped it with a thumbnail, reflectively, just as though Buchanan had all the time in the world.

Earthworm!—thought Buchanan, watching the officer restrainedly. Not that he was as derisive as the word tended to imply. It was merely a popularized epithet for all Earthmen on Teran.

Aloud, he said, "You look disappointed I passed Process. What's the trouble? I'm only a member of Merchant Interstellar. Are we supposed to be spies?"

The officer was semi-bald, semi-gray, spreading toward middle age. He was a ten year veteran on Teran, which represented at least sixteen years of duty since leaving Earth. They usually got "star happy" by that time. Irritable, homesick, and ultra-bureaucratic. Buchanan could sympathize, but it was no problem of his.

"Would you mind clearing me?" he said. "Captain Cardwell is still waiting outside—I hope!"

"You're cleared," replied the officer. Whereupon he handed him his trip clearance and his passport.

Buchanan stood there, seven feet tall, broad-shouldered, two hundred and seventy pounds—a healthy, average specimen of Teranian. He looked at the stamp on the visa while the six foot, one hundred and seventy-five pound average Earthman sat there brooding over a complex that was becoming racial. Terans were direct descendants of the first Earth colonists sent to Alpha Centauri, but two hundred years of adjustment to a planet that was half again as large as Earth had produced an undeniably superior race. They still numbered under twelve million, but a necessarily selective system of emigration to Teran had given the "colony" the cream of civilization. Terans were big, powerful, capable—and lucky! They lived in Paradise.

Larry Buchanan was in a hurry, but he could not resist gloating over that stamp on his visa. It told him that Central Government, on Earth, was giving him a chance to make his first interstellar trip, to travel more than four *light years* through the void and visit the solar system from which his ancestors had come. Perhaps that was why the Governor's agent was so sour, he thought. A common Teranian spaceman was going out on the long star road that led to Sol—which was home to the man at the desk.

"I hadn't thought of it until just

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now," Buchanan said. "Maybe I could—deliver a message? Pick up something for you on Earth?"

The agent grimaced. "After sixteen years? I'd be a stranger there, myself. Besides, that visa says *Sol*, meaning the System. Your ship isn't going to Earth. Mars is your only port of call."

Buchanan's mouth dropped agape, and for a moment his solar plexus seemed to be full of hot lead. Not to Earth!—after a lifetime of waiting to see it?—after a six years' voyage that still lay ahead of him?

"What are you talking about? You don't mean—"

The other waved his hand, dismissing him. "Captain Cardwell can tell you. Go ask him. I'm busy!"

Buchanan thought it would be rather nice to wring this Earthworm's neck, but then his better nature exerted itself. He grinned. "I'll wake up in the morning and find out *you* were just a bad dream!"

Vincent Cardwell was so deeply engrossed in meditation that he was unaware of the time until Buchanan came striding toward him from the Process Office.

"I got it, Vince! Let's go before Anne divorces both of us!"

Cardwell stood up, a broad-shouldered, seven foot Teranian, himself. He looked at his watch. "It's twenty-four hundred," he said. "We're going to have to eat at Center and tell Anne we can't make it out there. It's over four hundred kilometers to Lake Catherine and we'd be almost an hour getting there."

Buchanan stopped in his tracks. "How come? You're going to be saying goodbye for more than a dozen years. Anne is fixing the eats herself. I mean—what have we got to do now that's so important? I thought we were all ship-shape!"

Cardwell only grasped his arm with a gentle but firm pressure, tugging him along toward the exit, and for the first time Buchanan sensed that his companion was under tension. "Let's get out of here!" he said.

What he did *not* say suddenly became ponderous with indefinable probabilities, in Buchanan's mind. He clamped his mouth shut and strode with Cardwell toward the automatic doors. Something was up!

When he thought of Cardwell's beautiful star ship, the *I.S.S. Carlona*, waiting out there in an orbit around Teran—waiting on this eve of adventure to start off into the deep, dark yonder—he prayed, not too rhetorically, that nothing would happen at this late stage to cancel the multi-million credit trip. Teran was a great, wide, wonderful world with plenty of horizons and opportunities, which was all very well for those who wanted to settle down and make a career at home. However, Buchanan's settling down days were gone forever. He had been in love half his life with Anne, but he had returned from a year's assignment on Teran's four moons to find that she had married his lifelong companion and rival, Vince Cardwell. After that, *interstellar* flight had become an obsession that was equivalent to "rebound."

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CENTER was the functional name given to that cubical concentration of buildings which comprised the official and commercial part of the so-called "city" of Astra. Here there were no residential communities. The suburbs of Astra were scattered over a roughly circular area which was some two thousand kilometers in diameter. With the exception of remote controlled magnetic trains, ground travel was almost non-existent. However, whereas the suburbs were in effect loosely organized rural communities dedicated to the comfortable simplicities of living, *Center* represented all the compact efficiency that twenty-sixth century science could provide—as did Center Annex, ten kilometers away, where the industrial area was concentrated. The incorporated civic entity known as Astra was the only "city" on the planet, inhabited by close to seven million Teranians, descendants of colonists from Earth, and some twenty million *Alphids,* the semi-human indigenous inhabitants who had willingly accepted the role of servants and made of Teranian civilization a Hellenic type of society, of which gracious living was an ineradicable characteristic. The other five million Teranians lived and worked in various natural resource development centers located on twelve different continents.

"Now that I think of it, something *is* brewing," said Buchanan, as they sat eating their hurried supper. "I expected a third degree when they hooked me up to that monitor, but not to the thirteenth power! I mean—that thing pretty nearly asked me the color of grandpa's whiskers! 'What is the maximum percentage of self-determination which may be indulged in by the majority without conflicting with the principle of Collective Authority?'—euphonious for Statism. Now that's a fine question to ask a man who is expected to know the answers to such problems as—'Compute the increase of a given mass when reaching the velocity of point nine times C'—or 'Delineate the universal ecliptic!' Honestly, when the monitor shot me that one about allegiance to Central Government I thought I was back in primary school—"

"Cut it out!" Cardwell exclaimed in a low tone, his eyes searching the twin terraces of the restaurant apprehensively. "Wait till we're in the air. Talk about something else!"

Buchanan had stopped in mid-sentence, mouth slightly agape. He raised his brows slightly and surveyed the room. All he could see was a solitary, blue-skinned Alphid riding his soundless bus-truck toward the kitchen.

"What the hell's the matter?" he said. "We're alone!"

"I don't give a damn! I said stow it!" Their eyes met, gloweringly, and an old sore was scraped open way down deep inside of Larry Buchanan.

In his objective world, Buchanan regarded Cardwell as a slightly awe-inspiring buddy—a buddy who had explored Teran's distant wildernesses with him when they were adolescents and who had adventured with

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Vincent Cardwell

him on all six of Alpha Centauri's too young or too ancient worlds lying within or beyond the orbit of Teran. But in the private cellar of Buchanan's subjective mind, Cardwell was known, sarcastically, as "Vincent the Invincible"—the interstellar Midas who turned to gold all things he touched. Vincent Cardwell, the promoter, who owned controlling shares of the corporation that had built and now operated the *I.S.S. Carlona*. It was not enough to own a fifty-five per cent chunk of that traveling space island. Cardwell was her new skipper, too! Well, that was more understandable than the rest of the grudge items on his list, because one interstellar trip usually retired each captain, in rotation, and probably he, himself, would pilot the ship before he reached the age limit. But in the meantime Cardwell had his own considerable world by the tail. And who was Larry Buchanan? He worked for Cardwell—for Vincent the Invincible!—Vincent the Boss Man! Vincent—who was married to Anne. . .

"All right," he said, finally, "I'll talk about something else. What's this I hear about our only port of call being Mars?"

Again, Cardwell's face darkened. "That comes under the same heading," he answered. "I'll tell you later!"

Buchanan studied him. They had both suddenly lost their appetites. There was one other question he wanted to ask, but since it was personal he planned to save it for the six year voyage. However, this did not deter him from asking it, to himself: What were the emotional factors connected with Cardwell's decision to break the corporation ruling concerning the civil status of interstellar spacemen? He was married. Leaving a family behind you for twelve to thirteen years was tantamount to breaking up a home. There had to be a good reason behind Cardwell's determination to subject Anne to such loneliness and frustration. His one-year-old twins would be adolescents by the time he returned. There were two possible answers: Either he and Anne were incompatible and he didn't give a damn about the children—or there was a reason much more important than personal considerations connected with the imminent voyage of the Interstellar Ship *Carlona!*

Buchanan shoved back his chair and got to his feet. "Let's get going," he said, "to wherever we *are* going!"

Cardwell sat there for one brief mo-

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ment before getting up. He glared at Buchanan under heavy brows. "All right," he answered. "I'll take you. We're going to start a course in history. . ."

"History! What do you mean? What kind of history?"

Cardwell got to his feet then. "The history of the immediate future," he replied, cryptically. "In fact, we're going to help *write it!*"

TWO moons were up, making the Channel Sea look like old platinum. To their right, the two Teranians could see it stretching away to a horizon that seemed to be the upper lip of a titanic saucer. To their left lay the mainland, rolling back into the Gilbert Mountains where Lake Catherine and Cardwell's home were located. Down below, on the shore, was the solitary glittering cube of *Center,* in the middle of a tenuous, straight-lined web of lights marking magnetic trainways to Astra's widely distributed "suburbs." Dead ahead on the peninsula was the other cube, Center Annex, and beyond it the fifty square kilometer space flight station with its endless barge sheds, its lifter cradles, administration, operations and maintenance buildings, and its interstellar communications towers. The half dozen parabolic antennas loomed like Brobdingnagian, shimmering toadstools over the moonlit area.

"Larry!" exclaimed Cardwell, suddenly. "Take the controls!" And in the same moment he slumped forward.

"Vince! What's the matter!" Buchanan steadied the skycar with one hand and held his companion off the control panel with the other.

In a few seconds, Cardwell straightened up and shook his head. "It's like a cardi-stim jag," he said. "I'll get over it. Maybe I shouldn't have eaten so soon."

"What the devil are you talking about? *What* is like a cardi-stim jag?"

"The anti-reaction shot I took before being monitored. All that thing is is a glorified lie detector. Anti-reaction serum minimizes involuntary response to psycho-stimulus."

It was darker, after all, than Buchanan had imagined. "The plot thickens," he remarked, laconically. "What you did was completely illegal. It is subject to fine and imprisonment, regardless of who you are. You must have plenty to hide. Why don't I?"

For the first time since going to Process, Cardwell smiled, though faintly. "You *will* have," he said. "You're assistant engineer on the *Carlona,* aren't you?"

"So?"

"Ever heard of the Message to Garcia?"

"No . . ."

"How about Paul Revere's Ride?"

"All right! All right, Vince! I've waited long enough! Let's have it!"

"I'll take those controls," Cardwell told him. "We're almost at the rendezvous now, and you'll find out all about it there. I'll just prepare you with this: Teran is getting ready for a declaration of independence. The

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Carlona may have to play a strategic part in the whole conspiracy. We are going to be briefed right now by Howard Lydecker. Does that ring any bells?"

In Buchanan's mind, bells *were* ringing. Loud, jangling alarm bells. His pulse seemed to be pounding audibly.

Lydecker!—a recent immigrant from Earth, an Earthworm turned colonist!—the crazy little runt whom the official press had branded as a prime example of proof that Process could be erroneous at times. He had been before the Governor's court for months now as defendant in his deportation trial—because he had preached independence. A dynamic, irrepressible little devil, but popularly regarded as being nuttier than the proverbial fruitcake. Yet there must have been quite an organization of Teranian interests backing him because he had not been deported yet.

But revolution! Twelve million Teranians against six billion Earthmen! This was suicidal! Sheer insanity! Of course Teran hated bitterly to pay unjustifiably high colonial taxes when it took from ten to twenty years to get results from representative action on Earth, there were plenty of irritating trade regulations and restrictions on vital types of industrial and purely physical research, but—interstellar war, against ridiculous odds! Where would it get them? And what was the *Carlona's* role in all this? What was Cardwell's interest in it?

"Come off it, Vince!" he exclaimed, after a stunned moment of silence. "You're no bugle blower! You've practically told me that altruism and politics don't mix. What's the *real* story behind all this? You're a practical, hard-headed businessman. What's in this deal for Vince Cardwell?—and why are you dragging *me* into a powder house like that?"

The skycar was darting low behind the long line of barge sheds. "Don't you want your trip on the *Carlona?*"

"Hell yes, but—"

"Wait until after you have heard Lydecker. Then tell me about it. You see—we were supposed to go into all this after take-off tomorrow, but while you were in Process I received this message from the office."

He handed Buchanan an inter-office memorandum bearing no tell-tale heading, but both men knew that it had come from the offices of the Carlona Corporation. It read:

Meet L., barge 10, at 2550. Governor Pomeroy requests passage Carlona.

Buchanan's head jerked up. "Governor Pomeroy! Since when—"

"It's a surprise replacement. A new governor is arriving on the *Roosevelt* in six weeks, and as it will be held up several months for maintenance they evidently can't wait that long to get Pomeroy home. He's a twenty year veteran here. Probably Earth's greatest authority on current Teranian politics."

"I can see now why the emergency meeting. You couldn't very well con-

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spire with 'the Emperor,' himself, on board. . ."

Inasmuch as they were landing, there was no time left for further discussion. However, something of a personal nature was bothering Buchanan now. The fact that Cardwell had "cut him in" was proof that the latter was either depending on him to join in the zany adventure like an old buddy, or he was cold-blooded enough to consider eliminating him if he tried to squeal. Or was it simply that "Vincent the Invincible" knew he could handle Larry Buchanan under any circumstance?

INSIDE the shed were four other skycars, mere deeper shadows in the unlighted building. Cardwell parked alongside the others and he and Buchanan climbed out, looking up at the black bulk of space barge number ten, which, like all others of its kind, was zeppelin shaped and about five hundred feet long. Numbers one through twenty were Carlona Corporation property, of which twelve had already been loaded and lifted into the *Carlona's* orbit, preparatory to departure for Sol. Most of the others at the space port were Earth corporation barges waiting for Teranian cargoes or waiting to have their Earth cargoes unloaded.

A soft, blue spotlight swept down on them from the lock, halfway up the hull.

"Okay, Captain," came an unrecognizable voice, barely audible over the building's P.A. system. "Both of you, this way."

So I'm only the assistant engineer! —thought Buchanan, resentfully. "Who's here?" he asked Cardwell, as they found the ramp.

"Lydecker, Bill Haufek—and the crew."

William Haufek! Teran's most brilliant young expert in nucleonics! "Brother!" Buchanan exclaimed. "This is adding up! But who's that with the spotlight?"

"George Winzer—First Mate. Now calm down! Wait and see!"

"Winzer! But what about Ott Keffler? I thought he was First Mate!"

"Sh-h-h-h!"

Buchanan was quite indisposed to enter into any crack-brained conspiracies when he stomped sullenly past Winzer into the open airlock.

BARGE TEN was empty, its main hold converted into a sort of conference room. There was a long table, some chairs, ashtrays, and a single light—a glow-panel lowered down from the ceiling. At one end of the hold was a small instrument that glowed with a green light. Buchanan recognized it as a detector. Any unexpected intrusion into the shed would cause the green light to flicker red. He smiled derisively.

Where do we line up for lead pipes and propaganda literature?—he thought.

He also thought of Anne Cardwell, waiting alone at home on this eve of departure, and he thought of a lot of other things connected with his personal memories of Anne before she

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was married, such as their college days, and summer trips, and one unforgettable little space jaunt alone together. Twelve years for Cardwell. Twelve years for him, until either one would see her again.

He suddenly hated this clandestine meeting and everybody present. They were a bunch of asses and he was a fool for being roped in! Teranian independence—ha! Maybe in three hundred years! To contemplate it now was to pour two hundred years of hard work down the drain. Teranian civilization would end up either blasted to cosmic dust or sick, weak, and *really* enslaved—forever! Now was certainly not the time for it. If these hot-bloods were wise instead of just smart, they'd prepare for a peaceful, legal separation when the planet was really ready for independent and sovereign government.

At this stage in his reasoning, Buchanan stopped in his tracks and stared at the other men even as Winzer was introducing them to Cardwell and himself. Not a single member of the originally chosen crew was represented here! Dobson, Keffler, Phil Sutton, Lee Salkin, Hank Goodhew, Alex Jardine, and good old swobbie Larry Pyle! Where were they? In their places stood a circle of strangers, glumly returning his stare. . .

Dr. Albert Olmstead—Chief Engineer and metallurgist. Interstellar spacemen had to qualify with a minimum of two applicable professions in order to reduce the size of the crews and thus the oxygen, water and food supplies. Olmstead came under the wire, in a way—but why metallurgy? Buchanan was sure he was going to miss cantankerous old Keffler as his Chief.

Raymond Hopper—Communications, Electronics—instrument maker.

Dr. Edward Jayne—Medical, Surgery—assistant in Communications—assistant to Captain Vincent Cardwell in Navigation.

Dr. Alfred Makowski—Machinist—nuclear physicist.

Peter Puckett—swobbie and barge man. He would do most of the space suit dirty work.

Dr. William Haufek—Passenger—nuclear physicist.

Another passenger was definitely conspicuous by his absence. Governor John Pomeroy!

All of these men were tall, native born Teranians, with the possible exception of Puckett, who was young and somewhat more stocky than tall. But at this moment their leader seemed to be an undersized, wiry little Earthworm, Howard Lydecker—physicist, writer, politician extraordinary. According to official records, he was a questionable Teranian. After only five years on Teran he had come to this—a revolutionist!

"Before we begin, Vincent," Lydecker said, "did you pass Process satisfactorily?"

"Yes," Cardwell answered. "Both of us."

Vincent, was it! Buchanan wondered how long his "old pal" had been associated with the conspirator.

"Good! If you will all be seated,

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gentlemen, we can begin. ."

Buchanan wanted to remain standing, with his arms folded, towering over the Earthworm, glaring at him, but when Cardwell sat down he gave in and took a chair next to Peter Puckett.

"I regret that you were summoned to meet here in this manner on the eve of your long journey," he began, with a confident, silver-tongued fluency, "but as you have been advised by now the Governor is going to be a passenger on board the *Carlona*. However, this alteration of plan has its advantages inasmuch as I have the opportunity to address you personally. Captain Cardwell and Doctor Makowski were going to give you a message on Board the *Carlona*—a message which comes to you from the members of the Party for Independence, a secret organization of Teranian citizens numbering several million."

He paused for effect, and Buchanan thought—Several million! Ye gods! Where have I been? Then he remembered that he had spent at least half of the past few years in local space, working on reactor plants and preparing in general for the "big jump."

"Inasmuch as an affiliation with such an illegal organization is dangerous it may be assumed that these several millions of members represent many more Teranians who would like to be actively affiliated. Therefore, the message which must be brought to you may be considered as representing the planet of Teran, itself. And inasmuch as I am the present leader of the Party for Independence I will deliver the message to you now, in person. . ."

So it began. The little man was as dynamic as word of mouth descriptions had depicted him to be. His dark, earnest eyes were arresting, his simplicity of words and eloquent manner of delivery, as well as his surprisingly practical arguments, caught at least half of Buchanan's attention after he had made a decision not to listen at all.

"Now why should we seek independence from Sol in the first place? Why bother?" Lydecker looked around, searching the faces of his listeners. "Why disturb the present system of things? Why risk the lives of our citizens in interstellar conflict against our distant *State Authority*—the Earth?" His brows lowered, his eyes became piercing, and he leaned forward, resting his fingertips on the table top. "All right! I'll *tell* you why! In the first place, the history of this colony is two hundred years old. The original colonies of the former United States of America were younger than that and very primitively equipped when they declared their independence! Owing to the carefully selective system applied to emigrations to Teran, the resultant civilization here automatically represents the cream of the crop! We are, in cross section, the physical and intellectual leaders of humanity—and I assure you that comparative statistics can and have proved this point conclusively! Let me make this prin-

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ciple clear to you: If we are the very *cream* of the crop, by Earth's own selection over two centuries of time, then *we* represent civilization, the fountain source from which the future of Mankind will spring—and *they* are what is left behind! *They* are the old world, interring themselves already in one of the strata of history that is past!"

Thus Lydecker went on, swiftly, forcefully, sincerely, his expressive eyes now piercing, now appealing for response. He pointed out that Teran had originated as a mere mining camp dedicated to the sole purpose of obtaining Uranium, that for two hundred years Teran had supplied the system of Sol with eighty percent of its Uranium. But he said the Teranian mission was now accomplished at long last—because, as he was going to prove, Earth and its local colonies no longer needed Uranium. The Teranians had earned their just rewards. They should be free to carry on their own experiments in self-government. He listed grievances covering taxation without adequate representation, misuse of colonial tax money to the advantage of Sol and the disadvantage of Teran, unfair tariff, trade and import-export regulations, rank violations of Charter, and debilitating restrictions on scientific and industrial research and development.

Buchanan listened, and he made a decision. Whether he accepted Lydecker's arguments or not, he was going to take this trip to Sol—because what Larry Buchanan sought

Lydecker

in the adventure was purely his *own* affair. . !

"Now!" exclaimed Lydecker. "We come to the chief bone of contention, friends—that vital argument without which the Teranian dream of independence might have slept for yet another hundred years!" He held out his right hand, fingers half closed, tensely, as though he held within it the most precious thing in the universe. "It is *Cosmium,* the Metal of Power!"

He let them all think about that for a while and Buchanan was able to join the others in plenty of thought. He had read quite a bit about Cosmium. The heaviest element known —atomic weight 100. It had never shown up in solar spectrums, because it could not be manufactured under such extreme conditions. It had been generally well concealed because it was manufactured in the dense cores of cooling planets and satellites, Earth's moon being the minimum size and mass required for its occurrence.

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It was not unstable until taken out of the heavy gravitational field in which it was born and exposed to cosmic rays, whereupon any tangible mass of it would become critical and explode with a totally unprecedented violence. The moon had yielded a small amount of the element and two dome colonies had been wiped out by nuclear blasts before they learned to dampen the cosmic rays getting to it. Mars was the planet which had given the best yield so far. Robotic equipment in the twilight zone of Mercury was still not paying for itself. Planets like Earth and Venus *and* Teran were too big, heavy and hot to dig into, as yet. But Cosmium seemed to be opening up a new era of physical advancement. Its power yield was something short of fantastic when compared with Uranium. But it was the rarest and most expensive and dangerous and promising of all elements known to Man.

LYDECKER continued, this time with all stops open. He spoke swiftly and with a positive conviction that was irresistibly contagious. "Cosmium is already replacing Uranium on Earth. Star ships are being built around Cosmium reactor plants which will increase their velocity to point nine five C, which will definitely outmode our own shipping."

Point nine five C! Buchanan did some rapid mental gymnastics. Ninety-five percent of the speed of light! The mass curve at that velocity said that an ordinary ship would be burned out within a few million miles—but to maintain it over twenty-five *trillion* miles! That represented an energy output that came within hailing distance of infinity! It was incredible! He actually broke out into a light sweat, and now he was giving Lydecker his full attention.

"With the export value of our own Uranium reduced and all other tariff barriers and import regulations remaining unchanged, an intolerable degree of economic degeneration and social *puppetism* must result. But this is only the beginning! Two of the moons of Teran—*Achilles* and *Chiron*—as well as the inner planet, *Kronos,* are of the proper mass and age and workable size to yield considerable Cosmium from their cores, enough to put us on a par with the whole system of Sol! But we are informed officially by Governor Pomeroy, himself, that if and when we set up boring operations at those locations the whole program will be under the strictest possible Central Government control—and *all* Cosmium produced in the Alpha System shall be shipped to Mars, which is the repository and experimental center for all Cosmium in the known inhabited universe! *Wait!*" He waved his hands for silence as audible comments began to fly. "If you think they aren't foreseeing what our reactions are going to be, then let me inform you that the colonial garrison of the Central Government here on Teran, numbering about fifty thousand troops, is going to be augmented. Don't be surprised if you hear later on that the *Roosevelt*

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brought in a barge-load of additional troops, along with our new Governor, and that every Sol ship from now on will bring some more! Don't be deceived! *Cosmium* is the key to power—and *they* know it!"

The peculiar gesture he made with his hands and shoulders signified that his case rested, for the moment. It was time for reaction and rebuttal—if any. Cardwell, Olmstead, Jayne and Haufek had heard these arguments before, so they all looked at the newly indoctrinated—which were Raymond Hopper, Peter Puckett, and Larry Buchanan.

Puckett, deep chested, bull-necked and heavy in the arms, slammed a fist down on the table, almost causing it to crack. "So we're getting dealt off the bottom of the deck!" he said. "The question is—what do we *do* about it?" His light brown eyes swung from Lydecker to Buchanan, who merely met his gaze without expression.

"Aha!" cried Lydecker, beaming. "Now we're getting to the point for which we are here assembled! There are two points, to be exact. One point is: How can we establish this independence? How can we hope to resist our Gargantuan oppressor without armies or fighting space craft? Point number two is: What part must the *Carlona* play in this interstellar drama?"

He paused, looking at them, and they waited. Then he turned to Cardwell. "Captain Cardwell, would you kindly elaborate on the latter point?"

Cardwell responded with eager intentness: "Central Government definitely anticipates exploiting the Alpha System for Cosmium," he said, addressing himself chiefly to Hopper, Puckett and Buchanan. "Naturally, they also anticipate utilizing a good proportion of our own facilities, brains and manpower to accomplish this. The first concrete move in this direction was brought to the attention of the Carlona Corporation only three weeks ago. The Governor informed us that we were to change the crew of the *Carlona* so that it would include some of our best scientists, and Doctor Haufek was added as a special passenger in view of his outstanding accomplishments in the field of nuclear physics. The *Carlona* is to go directly to Mars, where these specialists will be trained in the new technical branch of nucleonics pertaining to the mining, handling, processing and general application of Cosmium. After this time they are to return to Teran and help supervise Cosmium mining in our system, under strict Central Government supervision."

"Then Mars," said Buchanan, abruptly, "will actually be our only port of call."

All eyes turned upon him, as though becoming fully aware of his presence only at this moment, and he sat there looking back at them in poker-faced defiance.

"Yes," replied Cardwell. "Our cargo barges will be picked up by interplanetary freighters and taken to Earth. The *Carlona* will receive a

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new barge train at Mars for the return voyage."

Buchanan's hopes sank. Years of planning for a twelve year interstellar round trip—just for a whistle stop! By God, if necessary he'd jump ship on Mars before submitting to that! But wait! The *Carlona* was supposed to have a "special" mission now. . .

"What," he said, "is the *Carlona* really going to do?"

That broke the tension. Lydecker smiled at him, as did Makowski, Olmstead and Jayne. But Cardwell did not smile as he stared back at Buchanan.

"If we succeed in our plan," he replied, "we are going to trigger the Teranian Revolution and make Independence a reality. The crew of the *Carlona,* with the able assistance of Doctor Haufek, is going to *hi-jack* the Cosmium stores of Mars and make a run for it back to Teran. By the time we get back, secret equipment now in the making will be ready for the Cosmium, and there are also a number of other surprises in preparation which will make us ready for Sol's retaliation."

The total, grandiose mosaic was finally forming a tremendous picture in Buchanan's mind. But there was still a big hole left, of which Ray Hopper seemed to be aware.

"All right," said the latter, "so when we get the Cosmium how do we fight? Six billion Earthwo—" He looked at Lydecker, coloring suddenly. "Six billion Earthmen against twelve million Teranians. So far, the whole thing is just visionary. . ."

Now Makowski jumped into the argument. He was a heavy set, dark browed Slavic type, giving the impression of ponderous but infallible intelligence. "Teran has never fought a war," he said. "In the history of Mankind, there has never been an *interstellar* war. I can assure you there are some factors in it that are totally new to human experience. It is difficult for us to visualize the actual advantage offered us by the vast barrier of time and space which separates us from Sol. Please remember that point—space is *time!* Over four light years of it is, anyway. If we sent a ship to bomb Earth, more than ten years would elapse after its departure before we would expect a retaliatory bombing. Even interstellar communication, relayed though it is by the ships constantly en route, is limited to the speed of light. Eight and a half years for one message to go to Sol and have the answer returned! Under such conditions, many possibilities present themselves which are completely unprecedented. Another great factor is expense. The expense would be mostly on the shoulders of Central Government because for the most part they would have to come after *us!* Imagine the expense of equipping a hundred or so interstellar vessels and say two thousand military barges and sending them here into battle! Such an armada does not exist! With the Martian Cosmium in our hands and plenty of native Cosmium sources available, we could sit here and make ourselves impregnable—and *then*

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send out a few special ships of our own design equipped with Cosmium bombs. Earth would soon give it up as a bad job—and from there our destiny would be completely in our own hands . . ."

"Time is growing short," interrupted Lydecker. He depressed a stud on his belt buckle and a magnifying prism swung out to show him the chronometer concealed inside. "We'd better clear the premises before the Patrol comes around—at 2800. Now there are many questions, no doubt, which you would still like to ask. I can only say that you will be further informed, as occasion allows, while en route to Sol. Before we adjourn, however, I must take a vote of confidence on these plans of the Party for Independence. In short, what is your general reaction so far?" He smiled then, looking closely at all of them, but it was a pale, nervous sort of smile made only with the lips. In his dark, glittering little eyes there was—something else.

Haufek spoke up. He was almost as tall as any Teranian present, but he was slender of build, the idealistic intellectual type. In his pale blue eyes shone a simple sincerity. "I feel," he said, "that the situation leaves no room for complacency. The issue of independence had to come to a head sooner or later. The advent of Cosmium represents a distinct historical crisis, so the time for action has arrived. The only way to achieve a higher goal is to make the attempt, to strive, to offer something of self for the good of the whole. I believe that in the long run the independent development of Teran would be distinctly beneficial to all humanity. What Doctor Lydecker contends, that we have been actually selected for superiority—which in my mind connotes solely the responsibility of leadership—is quite true. In time our freedom would benefit the peoples of both solar systems. So I, for one, am heartily in agreement with the plan. Of course," he smiled, "I am much more familiar with the practical details of what we hope to do, which contributes to my own confidence, but the basic fact remains—now is the time for action, or it may be too late, forever."

Lydecker smiled a little more genuinely at Haufek, but Makowski and Jayne and Cardwell were busy studying Hopper, Puckett and Buchanan.

"All right," sighed Hopper, with a wave of his hand. "I'm in."

Buchanan looked at Puckett's square, taut face, and Puckett looked back at him.

"Well?" said the latter. "What do you say, Buchanan?"

"I—"

Cardwell interrupted. "I can vouch for Buchanan," he said quickly. "We have been over some of this before. He's with us."

Buchanan stared at Cardwell and felt that his eyes were growing round with astonishment. What a lie *that* was! But something vitally urgent in Cardwell's gaze made him keep his mouth shut. He had been on the verge of raising a few objections because he was still not familiar with

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the "practical details" to which Houfek had alluded, nor was he personally disposed to "offer something of self for the good of the whole," inasmuch as the "whole" had not yet demonstrated any proclivity toward offering anything to him as an individual. He merely wanted to make the interstellar trip and not be encumbered, body and soul, with this top-heavy and bottom-flimsy conspiracy.

"All right!" said Puckett, interpreting Buchanan's silence as corroboration of Cardwell's statement. "I'm not backing out!"

There was a hasty exchange of handshakes and looks all around. Lydecker said something about personal rewards for all of them after victory had been won, about the gratitude of future generations and the inevitability of their success. The meeting adjourned within twenty minutes of Patrol time. . .!

LATER, en route to Lake Catherine, Buchanan asked, "What was the idea of the little white lie? You've never discussed this business with me before. How do you know I'm on board with this plan?"

"I just wanted you to be on board the *Carlona* tomorrow," Cardwell replied. "If you had expressed any unfriendly doubts you wouldn't be anywhere but at the bottom of the Channel Sea."

Buchanan tensed. "Says who?"

Cardwell shot him a quick glance. "Says the Law, Larry—the as yet unwritten Law of our people. Teran wants no part of Sol's heavyhanded policies from here on out. You know too much to back out now."

Buchanan cursed. "Pretty clever, aren't you, Vincent? How you *must* trust me! So I'm hooked, am I? Okay, then. I'll make the trip. We'll see what develops."

Damn him!—he thought. What's his real purpose? He had a perfectly logical and official reason for bumping me from the new crew.

"Why in hell do you want me on this trip, Vince?"

Cardwell was looking ahead at the Gilbert Mountains. "We've been through a lot of adventures together, Larry. This is the biggest of them all. I took it for granted you'd want to be on deck."

The hell you did! Buchanan felt trapped and it made him fighting mad. Yet another part of him was already anticipating the take-off aboard the *Carlona*.

As the skycar sped through the night, he looked out at the two Teranian moons, Achilles and Chiron. He looked far beyond them at a first magnitude G-5 star known as Sol. It twinkled brightly in the sky between uncounted suns that lay beyond and beyond—an endless horizon for Man's endless ambition. . . .

CHAPTER 3

LAKE CATHERINE lay in the lap of the mountains like a shimmering sheet of mercury, capturing and reflecting the rays of all four of Teran's moons, two of which were

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just rising. Beyond it loomed the glimmering snow caps of the mighty Henderson Divide, from which came the river that fed the large lake. Giant trees, thicker and taller than Sequoias—and perhaps as old—covered the rising slopes on every side. Far away in the silvery, moonlit mat of the forest a waterfall gleamed. Tenderleaf Falls they were called. Buchanan knew them well. He and Cardwell and Anne had enjoyed many a picnic there. In fact, there had been times—

"Anne must still be waiting up," remarked Cardwell. "I see lights."

"And why not? What's sleep? She has twelve years to catch up on that!"

Cardwell did not reply. Both men contemplated the house in silence as they came in for a landing. Since plasti-sections were too cumbersome and expensive to transport from Earth and Teranian industry was as yet dedicated to more vital needs, the house was not prefabricated. It was a very old-fashioned villa made out of native timber—a long, rambling, rustic looking place with gables, and sloping roofs for the snow in wintertime. Its yellowwood logs had not been stripped of their brilliant, reddish bark, and the whole effect was one of pioneer ruggedness, except for the tiny, leadwalled power shed in back and the visiphone antenna perched on the very top of the roof.

It was 2900, one hour from Teranian midnight, when they stepped onto the long veranda, and Anne was there quietly waiting for both of them. By Earth standards she would have been an Amazon, but by their own she was just the right height for men seven feet tall. She was lithe and graceful in the backless white evening gown she had put on for the occasion, and wilted yellow moonflowers still lay in her dark, dark hair.

Typically, she asked no questions in spite of the unusual disappointment she had suffered. She only took them both by the hand and said, "I've kept the *hashish* warm." Which might have sounded comical to an uninitiated Earthman, but to the three Teranians it was the name their kind had fondly given to the local and very stimulating version of coffee.

Cardwell kissed her, apologized for the delay and offered no explanation. They were soon established in the "den," drinking *hashish* and talking of trivial things—anything but the impending voyage. The "den" was long, with a polished hardwood floor that was decorated with the colorful furs of animals unknown to the entire system of Sol. One of them, a ten foot pelt of rich, deep orange, was spread before a great, stone fireplace where yellowwood burned cheerfully and squash-like seeds from the curleycew tree sent a woodsy aroma into the room. They all reclined on spongair formchairs with a *hashish* dispenser table between them.

Buchanan talked with as much apparent ease as the other two. He laughed and he smoked, but through the smoke he looked at her. Her soft,

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jet black hair was done up in a coiffure called "midnight." The left side of her head was done in pompadour, but it swept back around to join the heavy cascade on the right side which looped low across her breasts and was drawn in by a jeweled teranium metal clasp on her left shoulder. She might have worn it in another style, but he had once asked her to keep it long and she always had.

He wished, however, that as a married woman she would not give him so much out of her deep, hazel eyes —and yet if she had excluded him from the world that lay within them he would have suffered far more. And she knew it. Perhaps Cardwell knew it. Well, who the hell cared now? This was good, good bye!

Inasmuch as they all knew they were trying to be trivial, the strain was greater than if they had faced reality. Anne broke down first. She raised herself on one elbow, and the formchair obediently changed its shape to give her the most comfortable support in that position. Her face had paled, her smile had faded, and she did not look at either of them now. The game of avoiding each other's eyes had begun in the midst of a brooding silence, but twelve long years of space and time stared them down wherever they looked.

"Let's stay up all night," she said. "We could take the launch out on the lake. The moons are up. . ."

Buchanan looked at Cardwell, who sat on the edge of his chair now, elbows on his knees, hands clasped tightly together, studying the fire. His mouth was drawn in tight lines. "I ought to take the skycar back to the Port," Buchanan said. "I can pick you up in the morning, Vince. You ought to get some sleep. I mean —"

Cardwell sprang abruptly to his feet. "All right! All right!" he exclaimed, pacing the floor. "So this is the last night! You are very *kind*, Larry!"

"Vincent!" Anne sat up, her face coloring suddenly.

"Look! I—" Cardwell put his hands to his temples. "That shot I told you about, Larry—it's given me the shakes." He looked at his wife. "I'll feel better after a little sleep. I'll just go see the twins and then I'll take a timer. It'll give me a few hours of deep sleep and I'll be okay. So why don't you two—"

Both Buchanan and Anne spoke at once, interrupting each other.

Then Anne said, "Perhaps—we had all better go to bed." She looked from one to the other. "In the morning we'll have a nice—*farewell breakfast!*" The last two words quavered on the edge of a sob.

"Yes, let's get some sleep!" Buchanan put in quickly. "I know my room. See you in the morning!" Without looking back at her, or at Cardwell, he turned and left the room. Again he felt as he had in the Process office when the agent told him about the *Carlona's* only port of call. His solar plexus was a ball of molten lead.

Twelve years of space and time. . .

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IT WAS 3000—midnight. Buchanan felt farther from sleep than he did from Earth. He had taken the short trail under the yellowwoods to the boat landing. It was a long dock, reaching a hundred feet out from the land, low on the glass calm surface of the lake, and T-shaped. To his left was the launch house, and to his right was a long bench, facing the lake. A native canoe, built by Alphids for Teranian use, was tied to the far end. He sat there surveying the unadulterated beauty of his native world. Achilles and Chiron had gone below the horizon, but the two smaller moons, Artemis and Hestia, raced each other across the sky.

He had visited all four of them. Funny, he mused, that he was so much at home not only on Teran but in the whole Alpha System, everything here was so much a part of him—and yet he had planned for years to leave it all in the swift wake of a star ship bound for distant Sol, which to him was totally foreign. What was in the nature of a man ever to seek the distant places?

Why not face it? He was running away from a personal situation that had become insupportable. But Cardwell was going, too! Why! What was *really* behind it all?

A board creaked on the dock. He turned to see a solitary blue-skinned Alphid standing at the end of the bench. It was one of twenty of the indigenous creatures Cardwell kept about the place. Like most of the adult species, it was four feet tall, frail in the shoulders and arms, and ridiculously rounded out about the waist—in fact, heavily underslung owing to its short, stumpy legs and fat, three-toed feet. Its two chameleon-like eyes rolled in their sockets, observing first him and then the canoe, and back again.

"What's the matter, fellow?" he said. "Want a canoe ride?" He knew it could not understand anything but certain whistles and sign language, but he talked just for the relief of talking to some living creature, as he might have to a dog.

There were no dogs on Teran, but there were five hundred million friendly Alphids. They had been the subjects of extensive psychological study. Some of them could accomplish quite intricate tasks in factories.

But could they handle a gun?

"Hell!" he said aloud. And he thought—Imagine us coming to that! Drafting Alphids to help us battle Earthworms!

Suddenly, he looked back along the dock, and there was a constricting pain in his chest when he saw the white, moonlit figure of Anne approaching him. He stood up, speechless, watching her.

"I sent Paddy ahead to bring the canoe around," she said. "I saw you here—and I can't sleep, Larry. Will you take me for a canoe ride?"

Would he—! "But, what about—"

"He's dead to the world." She was beside him, looking up at him, with moonlight and a world of their own in her eyes. She wore a clinging night-cloak around what must have been a negligee. "Oh Larry! Larry! Take me

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out—please!"

He stared back at her for half a minute. Then he took her hand and led her around to where "Paddy" stood patiently beside the canoe, holding a paddle in his tiny hand.

Anne lay against the built-in padded back rest facing him, her head lolling back, looking at the stars. Buchanan paddled in silence, thankful for the chance to get out away from the land, out on the cool water in the night. He knew of an island over near the North shore. Once he and Anne had called it *their* island. He paddled silently in that direction, through a period of time that had that peculiar characteristic of being separated from the regular Continuum. You didn't measure it.

When he was almost to the island, Anne began to talk. "Will you think of me, Larry?" she asked.

"I'd better not."

"You mean—oh Larry, is that really why—"

"We're almost to the island."

She sat up and turned to look. "We used to call it *our* island."

"We used to call a lot of things ours." He dug the paddle viciously into the water. "I'm sorry," he said. "But before I go, will you answer just one question?"

"Of course, Larry."

"Why did you do it? Why did you marry Vince? I was only away a year. Do you love him?"

"I—I have that coming to me. I don't know what he did to me, Larry. Constant association, attentiveness, kindnesses. I thought I—"

"I won't accuse you of being blinded by the prospect of wealth and security. Maybe it was because he was so high in the Corporation you thought he'd be on the ground more than I. You knew I was a spacer aching for the stars."

"Yes, Larry, that was his own talking point!"

"And now he's going, too."

The canoe scraped sandy bottom as they reached the island's shore. It was there that Anne finally broke down.

"Why is he doing it!" she cried. "What does he think I am! Is he trying to punish me for not being able to love anyone but you?"

Buchanan rose slowly to his feet and stepped unheedingly into the shallow water. He dragged the canoe onto the shore. Then he leaned down and picked Anne up in his arms. She lay there in the double moonlight, still trembling slightly from her crying, looking up at his serious face, the burnished crown of his rusty red hair, the long, hard line of his neck.

"Anne," he said, in a low tone.

"Yes?"

"It's all a mess right now, between us, I mean. But it doesn't have to be a wreck."

"What are you trying to tell me, darling?"

"I mean—if you'll wait, I'll come back, and things will be right, then. I'll see to it."

Slowly, her arms went around his neck, but their lips met swiftly. And it was *their* island all over again. . .

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At 300 that morning, Vincent Cardwell watched the canoe as it approached the dock in the waning moonlight. He closed his telescope with a snap. On his face was a tense, derisive smile. He went back to bed then and again pretended that he was "dead to the world." But his long, powerful body was bathed in sweat. . .

BY MORNING, Buchanan had a new idea—one that he felt should have occurred to him much sooner. He waited until they were in the skycar, headed for the Port, and he made sure that he was doing the piloting. Cardwell was willing enough to relinquish the controls to him. He had not slept all night—nor had Buchanan, for that matter. He had on his captain's uniform, a cream colored plastisuit that emphasized the powerful lines of his tall frame, but his dark eyes seemed sunken under his bushy, black brows, and his acquiline features sagged in a vague expression of dejection. Yet deep within his eyes was something that only Anne had noticed when she said goodbye. It was a distant gleam, as of hidden triumph.

"You're losing altitude," Cardwell remarked, at length. He was looking below at Panorama Mesa, a famous landmark in the Gilbert Mountains. It was a high peak topped by a small, rock-walled mesa, inaccessible from the ground.

"Something's wrong," replied Buchanan. "I'd rather land first and then investigate."

"But why land on top of Panorama? That's a hell of a place to be stalled! We're due at the Port in an hour for the Governor's farewell parade!"

"Relax. There's always the phone."

True, he had forgotten the radiophone. But the whole circumstance bothered his instinct. "I don't see anything wrong. What's the trouble?"

Buchanan merely busied himself with picking out a landing spot on the verdure clad mesa. After he had maneuvered the car safely to a stop in a clearing between stooped and crazily looping curleycew trees he turned off the thermatrons and sat back in his seat, looking at Cardwell.

"I wanted to talk to you," he said.

Cardwell looked around outside, then back at Buchanan. "You must think it's going to be a rough conversation, if that's why you landed first." His deep, dark eyes began to come alive.

"It *might* be rough," replied Buchanan, watching him closely.

"Well, let's have it, Larry! Damn it!"

"I want a good, logical reason—a concrete explanation. Why are you doing this to Anne?"

Cardwell's lips straightened into a thin line and his eyes blazed, but he controlled himself. "I could say that's none of your business, Larry, but maybe it is, after all! Well, you ought to know the reason I'm taking this trip—after what happened last night."

"What do you mean by that?"

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"After that meeting with Lydecker."

"Oh. . ."

"What else *could* I mean, Larry?"

"What I'm getting at is that you're no starry eyed altruist. You're not going through with this conspiracy for the sake of dear old Teran. What's *really* behind it? What's in it for Vince Cardwell, personally? I want to see what it is that justifies leaving your wife and kids for twelve to thirteen years."

"It won't be too bad," replied Cardwell, evasively. "What's a dozen years out of a hundred? Life isn't as short as it used to be. Then there's her family she'll be with, and if something should happen to me there's my will. It'll take care of everything."

"Even under the conditions of an interstellar war? Don't be ridiculous, Vince. Now look! Brace yourself. I've got a proposition to make. You were authorized to change your crew. You've still got time to get hold of Phil Sutton and have him take my place. I'm staying here."

Cardwell's nostrils flared and his face reddened. "Are you insane!" he exploded. "What the devil's the matter with you!"

Buchanan's face was totally expressionless when he said, "I want you to sign a waiver and property settlement form before you leave so that Anne can get a divorce. I want to marry her."

"Listen, you—!" Cardwell's hand shot out and grasped the front of Buchanan's jacket. Almost as suddenly, however, he released his grip. "Even if I agreed to such insanity," he said, "you couldn't do it."

"Why not?"

"You forget you're working for the Party now. If you stayed behind you wouldn't live thirty hours, with what you know. Even if you eluded them a few days or even weeks, the result would be the same, not to mention intermediate trouble with Merchant Interstellar for breach of contract with Carlona Corporation. But Lydecker would be on your neck, and any association with Anne under such circumstances would probably endanger her, as well. No, Larry, I'm afraid you're still Assistant Engineer of the *Carlona*. But now that you've brought this subject out into the open I'll tell you why I didn't bump you when I switched crews. Do you think I'm fool enough to leave you behind when *I* have to go?"

Buchanan colored with sudden anger. His crinkly, copper colored brows lowered and the muscles in his neck tensed. "Vincent the Invincible!" he sneered. "Got it all figured out, haven't you? You've got me well grappled and moored. Just like a master move in that game you play—what's it called? *Empire*—that's it! A good game for you, Vince. Power! That's what you're after! The Midas touch! Everything you touch turns to gold—everything except Anne. She's still a human being. She always loved me and there's nothing you can do that will ever change it! That's what makes you so damn frustrated and mad that you're willing to pull us all down in one flaming

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wreck! Well, you're not going to do it!"

Cardwell turned in his seat, facing the other, his feet braced against the floorboards, ready to spring. "*You,*" he retorted, "are coming with me, or in two hours you'll be dead! I'm talking for the Party now!"

"The hell you say! You're always talking for Vince Cardwell! Don't ever try to kid me, Vince! We grew up together. Remember?"

Cardwell reached for the controls. "We've talked enough. Let's get this thing off the ground!"

Buchanan stopped him. "Just one thing more. If I go on the *Carlona* I want you to play a little game—just between you and me."

Cardwell met his stare coldly. "What is it?"

"It's a long, long road out there, isn't it?"

"So what?"

"It's twelve long years, Vince, going and coming. Long and lonely years of very close association, when it's thousands of billions of miles to the nearest star. Things happen out there. Men go nuts and jump out of airlocks. They lose their mag paks and drift away into endless nothingness, and you can't stop a star train going at eighty-five C to look for one man!"

"If you're saying what I think. . ."

"I am. ." Buchanan smiled, but only with his mouth. "My proposition is—if I go on the *Carlona,* only one of us is coming back!"

Cardwell matched his intense stare. A light film of perspiration was on his face. "All right," he said. "If that's the way you want it, Larry."

Buchanan's fists clenched. "Oh don't hand me that! It's the way you *planned* it all along! You didn't have the guts to shoot me in the back in local-waters, did you?"

Cardwell reactivated the thermatrons and took the skycar into the air.

"It's your game, Larry. The rules seem to be simple enough. Only *one* of us comes back. . ."

BUCHANAN did not participate in the farewell ceremonies. As Assistant Engineer, rehearsed over the course of years relative to his duties on board a starship, he was fully occupied with his technical responsibilities. Dr. Olmstead, Dr. Jayne and a Port inspector had boarded the *Carlona* hours before and were now in communication with him over spacephone. Peter Puckett assisted him on the ground.

With the help and under the supervision of two Operations officers, they personally tabulated data transmitted by Jayne from Olmstead and the inspector. It was routine but it was the Law. The ship had to be licensed for each trip, always within five hours of departure. To acquire its license it had to satisfy the safety monitor. The electronic tester demanded answers to vital questions relative to air supply, food, water, the condition of the power pile, fuel for the navigation rockets, instrument readings pertaining to the thermatron charge ratings, humidity and temper-

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ature in the gravitron cells, response of tractor and power beams, D.C. power banks, high frequency feedback absorption, radiation comparisons inside and outside the main shields, temperature and flow of molten lead around the boilers, proper functioning of condensation and return, turbine operation, generator output, *et cetera.*

Once the monitor was satisfied, it gave them a green light. One of the Operations officers, a friendly Teranian employed by Carlona Corporation, stamped and duplicated the trip license.

"Cheer up, men," he told them, with a wry grin. "They tell me those female Earthworms in the Martian colonies really go for Teranians. Just six short years and you may have a whole week or two to cash in!"

Buchanan and Puckett exchanged glances, aware of their dangerous political knowledge connected with the *Carlona's* secret mission. They could not know who was a Party member and who was not, or what innocent sounding banter of words might be a trap. Both men got to their feet and Buchanan signed a receipt for the license.

"You're a big help, Bryson," he said, noncommittally. "See you around sometime."

"All kidding aside, though, I wish I could go along," Bryson told them. "Never made a star trip. With only two to four trips out per year by Teranian vessels and with such small crews, how many of us will ever go before we're too old? You're lucky!"

Buchanan raised an eyebrow at him. "I hope you're right," he answered.

"Come on!" Puckett exclaimed. "Let's ditch these landlubbers!"

When they were assigned to a lifter they discovered that it was grappling another barge for the *Carlona's* train.

"That makes thirteen barges," commented Buchanan. "You superstitious?"

"No," said Puckett, "but if I were I'd still be all right, because we're picking up number fourteen en route."

Buchanan stopped walking. *"En route!"* he exclaimed. "What are you—"

"Skip it! There's the Governor!"

Governor Pomeroy stood there at the bottom of the escalator gangway in the midst of a small group of officials. Several Alphids were busy transferring luggage from an electric cart to the escalator lift. Five hundred feet away, behind roller fences and an armed company of diminutive Earthworm M.P.s, a large crowd of Teranians and Central Government employees with their dependents alternately watched his departure in sullen silence or waved their hands and shouted, while a band somewhere in the background still played the martial *Salute to Sol,* which was the universal anthem.

Cardwell was there, with his eye on Buchanan's tall, striding figure, and there were Winzer, Hopper, Makowski and Haufek. Now it was Howard Lydecker who was conspic-

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uous by his absence!

Governor Pomeroy was a rather impressive Earthworm. He was over six feet in height, and his two hundred and twenty Earth pounds of weight were still mostly brawn in spite of his years. He had a heavy jowled face, a ruddy complexion, a ponderous brow and a leonine mane of graying hair. His eyes were black and sharply penetrating. He had a reputation for stern, swift judgment and relentless execution of orders. For twenty years on Teran he had not been known as "The Emperor" without due cause.

"This is Mr. Buchanan, our Assistant Engineer," said Cardwell, introducing him to Pomeroy, "and this is Mr. Puckett, our barge man."

Pomeroy's grip was surprisingly strong for an Earthman as they shook hands. He had a way of looking into a person's eyes that meant he was actually interested in every personality with whom he was confronted.

"So now our little party is complete," said the Governor. "Is there anything to detain us further, Captain?"

"No, sir. We have our trip license, I see. It looks like we're on our way." But Cardwell did not look at Pomeroy. He matched Buchanan's intent stare as he spoke.

Only one of us will come back. . .

ONCE they had all boarded the lifter, its gravitrons were activated and the workship rose ponderously, pulling the loaded barge up with it. In spite of Buchanan's engineering knowledge of how this was accomplished, the demonstration never failed to fill him with respect both for the surprising laws of Nature and the human ingenuity that had discovered and made use of them. In the gravitrons, a few tons of free iron atoms had been neutralized. Having almost negligible electrostatic fields, they were in the same state, due to their immobilization, which would have occurred had they been brought by physico-chemical means to a temperature close to one tenth of a degree above absolute zero. Astronomers had long ago determined that Nature abhorred neutralized matter as much as it did a vacuum, as was proved by studying the composition and characteristics of dark clouds, or "neutral striations," in interstellar space. Physicists had learned how to duplicate neutralization, and thus star ships had been born—not mere rocket propelled interplanetary orbiters, but ships like the *Carlona,* capable of maintaining an arbitrary course at speeds approaching that of light, itself.

"Buchanan."

"Hm-m-m?" He turned to find Peter Puckett standing beside him at the observation panels.

"How about giving me a space engineering course? There'll be plenty of time between hibersleeps. I want to know all about it."

It was a legitimate question. Everybody studied and trained during a star trip. Ship's officers usually bore the responsibility of imparting their technical knowledge to lesser crew

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members.

"Okay, Pete," Buchanan said.

They did not mention it, but the fact was obvious that the two men were gravitating toward each other already. The pairing and matching of personalities under such circumstances was a well known psychological phenomenon. It was expected. Buchanan reasoned he could have done much worse in the way of space buddies. Peter Puckett was mentally alive, his personality surged between extremes of temper and enthusiasm —which made it more interesting than the phlegmatic kind, such as Makowski—and he would never stab you in the back. However, if he thought it necessary he might stab you in front, because he was the type that followed up convictions with action. Moreover, he was an exceptionally powerful man, physically, which gave promise of some good wrestling matches, at least. Exercise was an all important activity on star trips, and wrestling was a favorite sport with Buchanan.

The two men stood beside one another for a while, silently gazing down at Teran, the mighty planet of their birth. The Channel Sea had already shrunk to a mere neck of water connecting two great oceans, and the forested continent of Sylvania curved broadly toward the equator. This was goodbye to a world that they would not see in years—or perhaps ever again, if Fate so decided.

This was the real goodbye to Anne. Buchanan could feel the sharp reality of the parting now. Threads of memory and all their life's mutual attachments were unraveling through him and breaking off like paper serpentines, swirling and falling to the distant ground like Autumn leaves, leaving him alone in space.

He wondered if there would ever be another Spring . . .

"There she is!"

He looked up, startled. "What?"

"The *Carlona,* man! By God, that's what I'd call a beautiful sight!"

Buchanan looked upward, squinting slightly to accustom himself to the stars, which were shining unblinkingly now but pale and shorn of their deadly radiations by virtue of the polarizite view panels. Five miles above their lifter and barge he could make out the tiny satellite, looking exactly like a silver cigar clipped at both ends and thrust through a small buggy wheel. The "cigar" carried the fuel and air supplies, the Uranium pile, the thermatrons and gravitrons and boilers and generators and gyros and navigational rockets. That revolving "wheel" was to be their lonely abode for long, dark years to come.

"We're about in free fall already," he remarked.

"Yeah. We have to plant the barge first."

After the barge had been given an orbit, the lifter traversed the remaining distance by means of short spurts from its navigational rockets, and soon the silvery form of the *I.S.S. Carlona* emerged out of the stars to dominate all space—a vast, sleek denizen of the void, more than one

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thousand feet long.

The lifter sought its "cradle" at one end of the main body of the ship, an airlock located in the center of a battery of navigational rocket engines. Once the airlocks had been keyed in and sealed fast, transference of passengers and luggage was as simple as it was on the ground—in fact easier, because passengers sailed along the circular corridor in free fall, pulling themselves forward by means of the netting that lined the walls. Baggage was kicked along like so many toy balloons, and the Governor's space pullman almost collided with the Port Inspector who was returning to the lifter.

Buchanan kept thinking of the fact that this was actually a *star* ship, not an ungainly looking interplanetary "blimp," as the local ships were called by spacemen. They were crawling under the rocket fuel tanks and the liquid oxygen tanks. Now they were under the pile, itself, beneath its double shields and the molten flow of lead that heated the boilers that ran the turbines. That intersection ahead came just before the giant thermatron banks and the gravitrons. To a large extent, this "cigar" portion of the tremendous ship was his professional territory. His engineering training brought him a mental vision of every section and each detail, down to the startling performance of electrons in neutralized atoms.

In thoughtful silence, the eight men drifted up through one of the "spokes" of the outer wheel until they felt its induced centrifugal gravity begin to take hold. From there on their direction was "down." The sudden fall of the luggage demonstrated this fact.

Jayne and Olmstead greeted them at the foot of the chute, and each man seemed to meet the other for the first time. Down below in a busy, inhabited world, association had been on a wholly impersonal basis. Out here in this cramped little bubble of life, a man had to "measure up" in a hurry or he was whipped, psychologically, for the duration of the trip. Here, association would be necessarily on an extremely personal basis.

It was Ray Hopper, the Communications Officer, who first revealed his own Achilles' heel. He laughed, nervously, and said, "Well, here we are!"

Nine men turned to stare at him. Inasmuch as he had observed a ridiculously obvious fact, he blushed crimson and retired swiftly to his station. From such simple but personally bitter experiences, cancerous complexes had been known to develop. . .

THEY were two hours under way when First Mate George Winzer approached Buchanan and began to engage him in secret conversation. Since Cardwell had taken Governor Pomeroy on some kind of tour of inspection, the "coast" was clear. In fact, they were momentarily alone in the Meter Room, where Olmstead and Buchanan were to do most of their routine checking and tabulating.

"We're fifteen thousand kilometers

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out," Winzer announced. "How are your readings?"

Buchanan looked up. He liked Winzer, in spite of the fact that he had replaced an old space buddy, Ott Keffler. The man was in his early forties, a clear complected blond type with light blue eyes and an easy, pleasant smile—a cool, quick thinker and dependable ship's officer. Such men were an asset when the chips were down.

"Pretty fair," he said. "Guess I'll have to replace a few bleeder valves on the helices. Feedback's overheating the absorption banks. What's our velocity?"

"A long way from C-scale. We're still on altimeter—about 20 K.P.S."

"Guess you won't use the Doppler-scope for a while."

"Larry. . ."

"Yeah?"

Winzer looked behind him at the open hatch of the Meter Room. Then he leaned on the back of Buchanan's chair. "Anything we do from now on that is connected with the Party or our special mission will be referred to as the 'Project.' "

Buchanan's eyes met his. "So?"

"We want you to do some Project work—now."

"What kind?"

Winzer looked at the small chronometer on the meter board. "At seventeen thirty you are to meet Puckett and Hopper at number two lock, Zero Deck. They've been briefed. You are to go along for orientation."

"Go along where? Orientation for what?"

"It's space work. You'll see."

Buchanan's brow wrinkled up. "Is this something connected with barge *fourteen?*"

Winzer's eyebrows went up. "How did you know?"

"Puckett said—"

"All right. That's it. We're telling Pomeroy the thermatron circuits on number thirteen are fouling the beams. That's the excuse. Any questions?"

"Yes. Where the hell *is* this extra barge?"

"You'll find out. No time now."

"But what about those bleeder valves? We're still in first band gravity and have to get all the push we can while it's available."

"I'll get Olmstead on it."

Buchanan shrugged and looked at the chronometer. In a half hour he would be starting his first job on the "Project."

ZERO DECK was merely a tubular passageway lined with various types of equipment and supply lockers running through the axis of the "cigar." The thousand foot inner hull was divided into two principal decks on either side of Zero. These were A Deck and B Deck. The Zero Deck tube had an airlock at both ends. "Forward" on any starship indicated that half of the inner hull which contained the gravitrons. Number one airlock was "forward." Number two airlock was "aft," the one to which the lifter had attached itself when they had boarded the *Carlona.*

It was in the "aft" lock that Bu-

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Peter Puckett

chanan met Ray Hopper and Peter Puckett. The latter two were already in space suits except for their polarizite helmets. Puckett had an air of urgency about him and worked with grim purpose, checking the suits and the mag paks and special equipment they were to take along. Hopper was pale, looking from one to the other of his companions for moral support.

"Come on, Hopper," Buchanan said, "this isn't your first space walk. You've been through Basic."

"I know, but this is a *long* walk—seven miles!"

Buchanan grinned at Puckett. "Clear out to the 'caboose,' eh? Is that where we'll find number fourteen, Pete?"

"Stow it till we get there. Now listen. Hopper has fixed our transmitters so we can switch to a long wave band and won't be received by the Bridge. This is the switch here. If you don't want 'the Emperor' to hear us, use that switch. Okay? Let's get going!"

"What seems to be the big rush?"

"We're accelerating steadily, and our remo gear on thirteen only has a fifty thousand kilometer range. Come *on!*"

Remo. Remote control. So number fourteen was *not* a barge; it was a rocket ship! This was going to prove interesting, Project or no Project!

When they all had their helmets and mag-paks on, Puckett signalled the Bridge for a power beam. Immediately the faint buzzing of the small thermatron chargers was heard by each man, and they knew their mag paks would function. Under Puckett's quick manipulation of the lock controls the inner hatch slid into place. They watched their tiny barometers sink to near zero pressure as pumps drew the air away and their suits rounded out like miniature blimps. Then the lock lights were extinguished and the outer hatch slid to one side.

Teran and her four moons lay below them, a mighty spectacle of heavenly splendor. All the rest of their field of vision was a sea of stars. Bright stars like great, shining diamonds caught in a titanic spider's web sprinkled with radioactive dust. Half a mile astern, looking like a lost silver fountain pen, was barge number one, apparently suspended in space without motion in spite of its tremendous velocity. Beyond it, like a tiny grain of wheat, was barge number two. It was difficult to see the others, but that was where the invisible power beam pointed, and that

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was the direction in which their mag paks would take them.

They took the jump, and their small momentum sent them falling swiftly astern because of the ship's constant acceleration. Once they were fully within the power beam they activated their "paks," and small magnabeams rode the return flow of flux from the *Carlona* to barge number one. They went like rockets at first, but they were able to decelerate sharply by changing the polarity of their magnabeams. Within close range they could gain traction on any part of the barge's metal hull and pull themselves in.

Within half an hour they were standing on barge thirteen. When they turned to look for the *Carlona,* she was almost indiscernible against the ponderous star walls of the universe. They felt like castaways beyond Ultima Thule, yet by comparison with the distance they would cover during the next six years they still had one foot on the home shore. They were still deep inside the Alpha System.

Inside the barge, far aft, Hopper showed them a crate marked "J. Pomeroy—private." It was locked with a forged diplomatic seal.

"Just in case Customs wanted to inspect it," he explained. "Diplomatic immunity. You guys help me unpack it."

With their space suits off, they set to work, and in a short time they had uncovered a compact but very powerful remote control unit, all assembled and pre-tested. Hopper plugged it in to the thermatron power supply and warmed it up. He also jacked in a concealed antenna lead.

"Where is this roboship?" asked Buchanan.

"Ever heard of Hermes-2?" said Puckett. "I hadn't until Makowski and Haufek briefed me."

Buchanan's brows went up. "Yes, but—what the devil! That's—"

"I know. Less than a mile in diameter, a wild, eccentric 'roid on a ten year orbit and the fastest little devil in the Alpha System. Well that's where the Party planted the roboship over a year ago."

"But where is it now?"

Puckett grinned at Hopper, who responded with a half-hearted smirk. "Looping right in on us from out of nowhere, at about a hundred K.P.S. Now you can see why we fired rockets at exactly fifteen hundred today. This has been worked out to an Alphid's whisker—if they have any."

Buchanan tried to swallow but couldn't. "How—how close?" he asked.

"Relax! She'll pass us like a galactite within about five thousand kilometers. By Universal reckoning she'll emerge out of ecliptic at about plus twenty-eight dec."

"When?"

"About now. How you doing, Ray?"

Hopper was intent over his controls and a specially prepared table concerning Hermes-2. "I should have activated the robot signal by now, but I don't know. I have to fan the beam pretty much to make sure—"

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He was interrupted by a high-pitched whistle that came to them from the set's loudspeaker in long, steady dashes.

"There she is!" exclaimed Puckett. "Long live Teran!—or something. This is one more step, men!"

"What happens now?" asked Buchanan, expressionlessly. A nameless, hidden factor connected with all these secret maneuverings was bothering him and he couldn't define it, but he had instinctively arrived at a state of vague apprehension.

"We bring the little ship in and hide her in good old barge thirteen!"

"And then what?"

"When we get into the Sol System we'll plant her on one of the asteroids between Mars and Jupiter, and there she'll wait again until we need her."

"Special equipment on board?"

Puckett's face lighted up and he grinned gleefully. "Teranians know a little science of their own, Larry. Ask Haufek about that sometime and he'll show you how we're going to take the whole colony of Martanium—that's where the Cosmium center is."

The whistle dashes changed to an undulating whine. "She's homing in," Hopper announced.

"What if the Governor starts playing around with the visiscope?" queried Buchanan. "Won't he be able to see it arrive?"

Puckett looked at his watch. "In about an hour from now," he said, "Officers' Mess will be served. Pomeroy is a gourmet, and the first meal out is always special, you know. He'll be kept entertained for another hour after that. By that time our little pet should be bedded down for the duration."

THE roboship came in with extinguished motors, riding thirteen's stern magnabeams. It was a sleek little rocket auxiliary gravitron yacht of private design, about sixty feet in length.

Buchanan was not surprised when he was asked to help open the cargo hatch on the barge. This hatch was thirty feet wide and twenty feet high. It was only designed for opening in Port, because there was no airlock behind it. A considerable amount of valuable cargo that had been loaded into the main hold for a camouflage was thus ruined, and they dumped it. This would have been necessary, anyway, in order to make room for the *Surprise,* which was actually the name of the yacht. Under their light acceleration, the vessel had enough inertia drag to require the use of loading winches, but they got it in.

No sooner had they brought it to rest inside than all three men drifted with surprising abruptness against the aft bulkhead of the hold.

"What the devil!" Puckett muttered.

"What is it! What's happening!" exclaimed Hopper.

"Now it's my turn to tell you guys to relax," said Buchanan. "Olmstead must have replaced those bleeder

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valves, which gets more thrust out of the gravitrons. We're accelerating better now."

"That's dumb timing," Puckett complained. "If the winches weren't still holding our playmate here, we'd have been smashed like an omelette!"

On the contrary—thought Buchanan. It was perfect timing. Now he knew what was bothering his instinct about this whole business. Everything was working *too* smoothly! The safety monitor at the Port had passed the feedback and absorption readings, which meant that the defective valves had been installed *after* take-off.

Suddenly, a new thought brought a prickly sensation to the back of his neck. On the surface of things, one might have concluded that the defective bleeders were used to time the *Carlona's* rendezvous with the *Surprise* a little better—but on the other hand, could it have been an excuse for creating that sudden increase in acceleration just in time to crush him under the weight of the space yacht? Or was his imagination working overtime? Winzer had said this was "orientation." Did he actually have to be out here with Puckett and Hopper to do this job, or was he a last minute addition?

The next day he found an opportunity to ask Olmstead about the bleeder valves. He put the questions to him as casually as possible.

"You must have been waiting for us to get our 'cargo' into barge thirteen yesterday before you threw in the good bleeder valves," he said.

"Of course!" replied Olmstead. "A sudden surge while you fellows were outside might have thrown you out of mag range and dumped you into space—or it might have lost us the *Surprise*."

"Mm-hm-m. Who was timing you—I mean, Pomeroy wasn't hanging around the visiscope, was he?"

"God no! Cardwell was handling it alone. He signalled me when it was safe to replace the bleeders."

Very safe! Buchanan suppressed a grim smile. Score one for himself! Cardwell had fired the first shot and missed, while callously endangering the lives of two other men. What a crafty and dangerous man his old space buddy had become! Perhaps it was something he had learned from playing the game of Empire.

But now it was Larry Buchanan's move!

VELOCITY was now being measured on C-scale, which meant in relation to C, the speed of light. It also meant that they were out of space altimeter range and must use the Dopplerscope, which was an automatic speed indicator based on the spectrum shift of Alpha Centauri.

Within one week the Dopplerscope indicated the figure, 03—three hundredths the speed of light, or nine thousand kilometers per second. In the second week they passed the Earthship, *Roosevelt*, within fifty thousand kilometers. Even at that distance of closest approach it was impossible to count her barges because their combined velocities car-

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ried them 3.6 million kilometers apart on their respective courses within the single minute of closest visiscope observation. Nor was microwave communication possible until minutes after they had passed, in spite of frequency shift compensators. However, prior to its passage the *Roosevelt* had been in contact with the *Carlona*. Pomeroy and the new Governor of Teran had been exchanging coded messages for days.

After this event, life on board the *Carlona* began to settle down for the "long haul," as it would be three months before they came within hailing distance of another star ship. Hibersleep schedules were posted. Each man was to submit to a sort of estivation for a week at a time, with a three day period of alternate wakefulness and catnapping in between. This system had been found to conserve over sixty percent of the air, water and food supply that would normally be consumed. It also gave each passenger an apparent trip time of less than two years instead of six, as far as conscious awareness was concerned.

The hibersleep schedule kept three men on deck at all times. Inasmuch as there was very little in the way of duties to occupy their time, they dedicated their leisure hours of wakefulness to reading, studying, exercise, games and hobbies.

A day came when Buchanan and Puckett were examining the gravitrons together. They were six months out and traveling at 73-C. By this time they had lost track of who would be the third man on deck with them, as the hibersleep schedule rotated in staggered fashion, each time making a new combination of three man crew. Any dangerous trouble in the operation of the ship or its barges would activate a general alarm, so that outside of a few routine meter checks there was no need for anyone to be at any particular station at any given time.

The so-called gravitron "tank" was in actuality a cylindrical room just aft of the forward gyro that kept the "cigar" pointed on course. It was fifty feet long by thirty in diameter. Down its center was a hollow tube of polarizite that was eight feet in diameter. Inside the tube were three vacuum chambers, and in the center of each they could observe a large, dense cloud of neutralized matter. Encircling the outside of the tube were gigantic, ultra high frequency helices, and from their top and bottom axes bleeder resistors, or "valves," led to the hidden absorption banks behind the walls of the room, which in turn fed back into the thermatrons on B Deck, below.

Both men were wearing enclosed air helmets because the gravitron tank contained only helium gas at extremely low humidity. Communication was accomplished by telephone because radio transmission or reception would have been impossible in that place. Owing to the intense high frequency of alternating electrostatic fields produced by the helices, their hair was standing rigidly on end, but to this peculiarity was

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added the phenomenon of visible wave motion as their hair responded to a lower harmonic of the sine-wave off-phasing of alternate double field polarities. It looked as though a wind were blowing inside their helmets.

"Those bleeder valves," Buchanan was saying, "keep the arcing at a minimum. The power that would ordinarily be expended in arcing is fed back through the valves and so you conserve quite a bit of it. If you get a weak valve like we had when we started out, you get a leak, which weakens the fields and overheats the absorption banks."

Puckett's vertical, slowly rippling hair-do gave him a ludicrous expression of extreme astonishment as he looked up at the widely spaced coils. "To think," he said, "that it takes all that to give us a lousy 85-C max on these tubs! Do you think somebody'll ever figure out a way of exceeding the speed of light? Boy, that would be something! We could really start exploring the galaxy then. The way it is, I doubt if anybody'll visit Sirius in our time. I know I wouldn't want to spend twenty-five years of my life just to take a close look at it!"

"Now you're talking about something that is the modern alchemist's dream—but who can say anything is impossible any more? We've been fooled too many times. Air flight was impossible at one time—even mechanical locomotion—not to mention visiphone, atomic power, interplanetary travel—and *interstellar* flight. Still, there's a big argument against trans-C velocity or even reaching C, itself. As far as the mass factor is concerned, it goes to infinity at that point, and the required energy is also infinite. So how are you going to do it? Our mass right now is equivalent to a good sized planet!"

"Now you're getting into *my* territory!"

Buchanan and Puckett looked blankly at each other. Somebody else had thrown a phone jack into their system. They turned around to see a tall, slender figure in an air helmet, a man with an aquiline face, pale blue eyes and a friendly grin. His phone cable was jacked in to Buchanan's belt panel and he had not felt it.

"Haufek!!" they both exclaimed at once.

"So *you're* number three," remarked Buchanan, pleased to see the eminent young physicist.

"I feel awfully talkative today," said Haufek. "That's why I went looking for you fellows. How about us going up to the galley and putting some *hashish* on the coils? I'll sizzle your ears with a pet theory of mine."

"Man! Now's our chance!" enthused Puckett. "We've got him all to ourselves, Larry!"

It was a discussion to be recalled vividly by all three men at a much later date. It lasted for hours and left a deep impression on the minds of Haufek's listeners.

"So you see," he concluded, "inverse mass drive is theoretically possible, and that's why I'm so anxious to get my hands on some Cosmium."

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"Say!" exclaimed Puckett. "If you could hop around through space like that, going to Sol would be like a trip to Center for any citizen of Alpha! Why, that would make *intergalactic* travel a reality!"

Haufek smiled politely at the other's enthusiasm and got up to heat some more *hashish*. "Take it easy, Pete," he said. "We're a long way from even setting up experimental facilities, if we ever do, and it would require an astronomical figure in credits. After that—time, patience, and luck! Maybe someday—"

Buchanan emptied his cup and looked at Haufek's lean and slightly stooped shoulders. "Bill, is this your own exclusive theory? I mean—does anyone else know about it?"

Haufek turned slowly to study his questioner. "I've never discussed it," he said.

"Then why tell *us?*"

An indefinable smile crept over the physicist's face. "I said I felt talkative today."

Buchanan wrinkled up his brow. "Maybe—"

"I know what you're going to say. Maybe we had better keep it between us."

"That's right!"

Both men looked at Puckett and his eyes widened.

"What are you getting at?" he said.

"I think Larry here is arriving at certain conclusions about our patriotic mission which are closely related to my own," replied Haufek.

"You mean," said Buchanan, "that this whole show is going along too smoothly."

"Exactly. But don't misunderstand me. I believe in the principle of Teranian sovereignty. It's only that I want to see Party theories implemented rather than acting as a front for something so totally unexpressed that even Lydecker is unaware of it. I became cautious only after I witnessed the first physical functioning of our plans and began to put two and two together. After all, to plant the *Surprise* on Hermes-2 a year ago must have taken considerable equipment—an interstellar ship. To develop the very advanced equipment the yacht is carrying required powerful influence and multi-million credit bribing of officials somewhere along the line. Moreover, the timing of that rendezvous with the roboship was just too perfect."

"Well," Puckett offered, "Howie Lydecker didn't make himself Party leader for nothing. He's a resourceful little dynamo, to say the least."

Buchanan leaned close to Puckett and asked him, in a low tone, "Ever hear of Adolf Hitler?"

"Sure! Just like I heard about Julius Caesar and Genghis Khan. But Lydecker's no Hitler!"

Haufek smiled at Buchanan but addressed himself to Puckett. "The two men have one thing in common, I'm afraid."

Puckett's face clouded and he became wary. "What do you mean? I think Lydecker is a good man!"

"Maybe too good," retorted Buchanan. "He's just the kind of mega-

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lomaniac idealist who makes the best possible type of stooge!" His eyes met Haufek's gaze and found confirmation.

Puckett's face reddened with perplexity and his mouth parted in incredulous amazement. "You mean —"

Both of his companions looked at him and shook their heads in solemn affirmation.

"But then—who *is* the Master Mind?"

"That," said Buchanan, "is a nice little question. We don't know. But as far as I'm concerned I'm taking all this very much with a grain of salt. My motto is: *Watch it!* And that's why I think we'd better keep Bill's inverse mass theory to ourselves. Wiser men than Lydecker might need it someday. With ships like that, Sol would be helpless—that is, if we *have* to get ourselves messed up in a war. ."

"I was thinking of something else, too," said Haufek. "If things really went bad—I mean, if Central Government really brought Teran totally under the same dictatorial rule that the Sol System is suffering now, we might be able to find a distant world for some of us to build up the kind of society that men have always dreamed of. . ."

It was Buchanan's turn to stare, but Puckett joined him.

"Do you feel all right?" queried Puckett, as he stared at Haufek.

Buchanan got to his feet. "Come on, Pete," he said. "I'll let you beat me again at wrestling, you sawed-off ape!"

Puckett's face brightened. "*Let* me beat!" he cried. "Why you overgrown Alphid's uncle, how would you like a sine-wave in your spine!"

Haufek grinned. "This ought to be good!"

ELEVEN months out. Velocity, 86-C. Distance from Alpha Centauri in millions of kilometers: 4.682 times 10 to the sixth.

Buchanan and Cardwell were playing the space game called Empire, and Governor Pomeroy was third man in the "crew." It was a spaceman's game because it required about three times as long to play as the average game of chess, and time was a distinctly surplus commodity.

The players of Empire used one main board called the Master Plan and were supplied with magnetized, metallic playing pieces. On either side of the Master Plan, in slightly elevated positions, were two secondary boards for each contestant. One board was called Power and one was called Wealth. These latter boards were on spring tension scales which could be operated by gravity, when present or induced, or by magnetism. Certain strategic moves on the Master Plan enabled a player to make secondary moves on the board of Wealth, which could result in his winning or losing a chance to make small or large gain moves on the board of Power, and it often happened that all three boards had to be inter-related in the game to the point where triplicate combinations

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of moves had to be visualized several steps ahead by each contestant. When any Power or Wealth board weighed enough, by virtue of pieces gained, it would close an electrical contact and cause a light to appear on a score panel. The first player to activate both the lights of Power and Wealth won the game of Empire.

Cardwell had been ship's champion since the beginning of the voyage and Buchanan was only playing him for lack of anything better to do. It was a means of avoiding conversation except for occasional impersonal references to the game, itself.

They were about in the middle of it and Cardwell had already activated his Wealth score light when Pomeroy stepped into the recreation room. He had lost most of his florid complexion by now as well as about ten pounds of his weight as a result of confinement and hibersleep. But he was still "the Emperor," having lost none of his leonine bearing or dictatorial attitude.

"You men come to the Bridge a moment," he said. "I want to show you something in the visiscope."

"What is it, Governor?" asked Cardwell, from his chair. "Another lost comet?"

"No. Something weird. Come on!" He glared at them impatiently and they got up, looking questioningly at each other. Interstellar space was a vast and bottomless sea, practically unexplored in a physical sense. In that great Unknown, incomprehensible things had been sighted before by spacemen.

William Haufek

They followed him rapidly to the Bridge.

The polarizite viewpanels on the Bridge were set at opaque, because to look at the heavens directly from the "Ring Deck" while it was revolving would have been futile. The observer would have seen merely a spinning whirlpool of stars. The visiscope, however, was connected through the "spokes" to several robotories, or remote controlled telescopes, situated on various parts of the gyro-stabilized inner hull. The visiscope screen on the Bridge enabled the observer to obtain a stable, magnified view of any desired portion of space.

Pomeroy, himself, manipulated the controls, and the other two noticed he was connected with the aft robotory.

"How fast," he asked, "is 86-C, in kilometers per second?"

Buchanan looked at Cardwell, and the latter replied, "Point eight six times three times ten to the fifth is—ah—two hundred fifty-eight thou-

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sand kilometers per second."

"Something over nine hundred million kilometers per hour," put in Buchanan. He turned to Cardwell. "We've been hitting 86-C for over three days now, so it must be max. We might as well shut down the gravitrons."

"How fast do meteors travel?" asked Pomeroy, still searching with the visiscope.

"Anywhere from a few K.P.S. up to two or three hundred, depending on an infinite variety of factors," replied Cardwell, impatiently. "But what are you getting at? You won't be seeing any meteors, no matter how big, or even asteroids, at our speed. Even if they were traveling in our direction we'd pass them so fast that they might as well be invisible."

"Not only that," put in Buchanan. "Out here they're so sparsely distributed that the probability of colliding with one is almost zero."

"Then what I'm going to show you is something *else*," said Pomeroy, "because this thing is on our tail and overtaking us."

"*What!!*"—from both Buchanan and Cardwell.

"There it is! Look!" Pomeroy pointed at the screen and they crowded close to see it.

Automatic filtering had adjusted the light of Alpha Centauri so that they saw it in the lower left portion of the screen as a clear, bright disc, very small and distant looking. But the star's brilliance served to minimize the light of the star fields beyond it and to bring out in sharp relief the object under scrutiny. It was roughly circular in shape and appeared to be in about a one quarter crescent phase. Its apparent diameter exceeded that of Alpha Centauri. It seemed to hang in space somewhere astern of them, without motion, which meant that it was traveling with them.

"It's much bigger now than when I saw it last," said Pomeroy. "What is it?"

Again Buchanan looked at Cardwell, but this time with a tense, startled expression.

"We know what it *has* to be," answered Cardwell, "but it's such a rare coincidence to find one on our own course and traveling at close to our own velocity that—I think it will never happen again in human history. That's a galactite."

Pomeroy turned and glared at both of them. "I'm no astronomer," he said. "What the hell is a galactite?"

"You tell him, Larry. I want to scan it with the radalax and see how big and how close it is and plot its course. That baby may be a whole planet for all I know!"

They gathered around Cardwell as he went to work on the radalax oscilloscopes, and Buchanan elaborated. "A galactite is essentially a meteor," he told Pomeroy, "with one basic difference. It comes from outside the galaxy and from God knows where—very probably from some other island universe so far away that it would take this ship, at our present velocity, a couple of million years to reach it. During its travels, a galac-

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tite keeps accelerating toward any particular galaxy to which it has been attracted. By the time it arrives it is going close to the speed of light and its mass is terrific. Some astronomers have theorized that larger galactites, striking normal stars, have been the cause of a few short-lived novae."

Pomeroy's stern face submitted to an expression of wonderment. "My God! They must be rare!"

"Very," put in Cardwell. "In fact they only existed in theory until now. This is the first one ever actually observed."

"We ought to get it on a visitape," said Buchanan. "Otherwise nobody'll believe us."

Cardwell turned around and stared directly into Buchanan's eyes. "I have a much better idea," he said. "Radalax gives it a twenty foot diameter. It's not more than a half kilometer astern. Although it's traveling faster than we are and on a course that will take it out of our reach in about an hour, I think we've got time to go out and haul it in."

"But—!" Pomeroy almost spluttered. "I understand a mag pak can only operate between magnabeams. How would you get out *there?*"

Again, Cardwell stared at Buchanan. "We have the space raft for use in salvage work. It has rocket engines and a sufficient range, I believe."

Pomeroy stared at both of them in amazement. "Do you mean to say you'd risk yourselves on an open space raft—way out here in nowhere?" A strange look of concern came into his eyes. "I don't want you taking unnecessary chances, Cardwell!" And then he covered up, hastily. "Nor you either, Buchanan!"

"It's worth the risk, I think," said Cardwell. "I don't believe any space captain would overlook such an opportunity. The thing is just too rare to pass up. Think of it, Larry! A piece of another galaxy, right in our laps!"

Buchanan's lips curled in a barely perceptible sneer as he returned Cardwell's meaningful gaze. "It *is* an unusual opportunity," he remarked. But his mouth was getting dry already with nervous tension.

Cardwell was not as much concerned about the galactite as he was about personal matters between them. The present situation was an excuse for *inviting* him to a duel in space. And only one of them would come back! It was funny, he mused, how you felt when the time arrived for life or death decisions. Sort of light headed, cutting tomorrow out of your mind—because there might not be any.

Pomeroy chuckled, suddenly, and shook his head. "That galactite must be rare, all right," he said. "This is the first time I've ever seen you abandon a game of Empire right in the middle of it!"

Cardwell was still glaring at Buchanan, a light mist of perspiration beginning to glisten on his face and arms. "We can continue it in due time," he said. "As I remember—*it was your move, Larry.*"

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RAY HOPPER and Dr. Jayne were the next men due out of hibersleep, so they were awakened in order to complete the required complement of three men on deck. When the plan to salvage the galactite was explained, Jayne not only agreed that they should bring it in; he volunteered to be one of the men to go for it.

Cardwell refused on the grounds that Jayne was the only medico on board. Hopper, on the other hand, made the excuse that his duties called him. He retired hastily to the Communications Office to check over the tapes and determine whether or not any inter-ship or trans-stellar messages had been relayed in.

Buchanan and Cardwell ascended one of the "spokes" in silence. When they reached Zero Deck, in the inner hull, they broke out the special salvage workers' suits. These were non-flexible, being constructed entirely of heavy metal and thick, reinforced polarizite to protect the wearer from possible collisions with drifting beams or wreckage. They were very much like deep sea diving bells, but were equipped with articulated hollow arms and legs. In place of gloves they were fitted with an assortment of small grapnels, cable snippers and work tools, operated by levers from inside. The ponderous shoes contained variable strength electromagnets powered through cables by thermatron units on the backs.

Buchanan helped Cardwell into his equipment first, and then the latter helped him into his. There was a moment when the sharp grapnels and cable snippers on the balled ends of Cardwell's suit came close to his neck, before he was all the way into his shell. Both men paused to stare at each other. Those metal talons could tear him apart.

"You wouldn't do it this way, would you, Vince?" he said, knowing that the other could not hear him now. "Too obvious, isn't it? You want it the Cardwell way—in the dark, when my back is turned! It has to look like an accident. This would be messy, here in the tube. Not worthy of a champion player of *Empire!*"

Cardwell could not read lips, but he could read Buchanan's leering face. He shoved him down into the shell and reached for the helmet.

Buchanan had no formulated plan. In fact, he'd just as soon not go through with this. Not that he wasn't intending to play a game which he, himself, had proposed—but this wasn't *his* way. You fought an enemy when you were worked up to it.

But this! It was such a fiendishly phlegmatic way to indulge in murder. Out there in the deep, cold dark. To make a man get lost forever and live only long enough to experience a lingering death, to deliberately push him into this terrifying Charybdis that lay beyond the horizons of Heaven or Hell!

He hated such an act, but if that's what Cardwell was made of he'd meet him on his own ground. It could be that neither one of them would come

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back.

When the outer lock opened and they saw the stars and distant Alpha Centauri, he thought of that night with Anne—on their island.

"If you wait," he had told her, "I'll come back, and things will be all right, then."

Activating their magnetic shoes, they walked slowly and awkwardly up the hull toward the outside hatch where the space raft was stored. It was an eerie experience for both of them, looking along that thousand foot, starlit hull with its strange protrusions, its magnabeam and buffer mounts, its power beam projectors and robotories all silhouetted against the star banks like the petrified monstrosities of a lost world. And above them—the Ring—with its friendly looking lights where the polarizites were not opaque. Little warm lights, infinitesimal sparks of humanity sailing brazenly through an Eternity that would never be aware of the brief span of Man's entire existence. Space—Makowski had said—was *Time*.

But enough of philosophy, thought Buchanan, ironically. There was murder ahead. . .

CHAPTER 8

THE SPACE RAFT was a rocket-propelled platform measuring twenty meters on a side. Its metallic deck was lined and criss-crossed with inset rows of cargo rings and locker doors. In these lockers were all the working paraphernalia of the space salvage workman—tie-down straps, cables from painter to hawser size, welding equipment, portable gas-pressure motors for short distance space suit travel, radiation detectors and a large variety of hand tools. Below deck, also, were fuel tanks for the navigating rocket engines located at both ends of the raft. There was an adjustable superstructure of light girders which acted as bumpers to protect the workers from collision with objects overhead.

Designed for use in a free orbit, the raft was adaptable to their needs now because the *Carlona* had attained maximum velocity, was no longer accelerating, and was in the condition of free fall. Under instructions from Cardwell, Dr. Jayne had shut off the gravitrons and was damping down the pile accordingly. The *Carlona* and the space raft appeared to float motionlessly in the center of Creation.

The galactite's superior velocity had already carried it beyond the *Carlona* at an apparent twenty degree angle from their course. It was far to starboard and receding at about a hundred kilometers per hour.

Without comment, Cardwell started two engines aft and the two men hung in their straps, looking for the galactite. Behind them, the *Carlona* began to shrink in apparent size until it was a large model of a star ship, then a toy, and finally a lost mote among the stars. Ahead of them, the galactite again acquired a disc, this time in full illumination, since Alpha Centauri was astern of

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them. Cardwell skillfully decelerated to the point where their speed matched that of the ancient chunk of matter from beyond the stars. Or rather, they drifted toward it now with an almost imperceptible motion.

"Better watch our range," Buchanan warned, over his radiophone.

Both men knew that the *Carlona* could neither slow down nor change its course. To exceed the range of the space raft would be to stay out there forever.

"Break out the magnablocks, then," said Cardwell. "Let's get this over with."

The magnablocks were permanent magnets attached to the ends of slender, plastic cables. Buchanan was arranging a pair of them on deck when Hopper called them.

"Dust ahead!" he yelled. "Tie down and head in fast!"

Both men looked at each other in silence. *Dust!* Apparently harmless clouds of neutralized matter so attenuated that they were usually indiscernible to the eye, yet they were sometimes millions of kilometers thick, and at the present velocity of the raft the impact pressure would be equivalent to a hurricane. The *Carlona's* instruments could detect these clouds at astronomical distances, but the space they were traversing each second was also astronomical.

"Cardwell!" This was Dr. Jayne calling. "You can't make it back in time! Hitch on to that galactite for mass anchorage and start hauling toward the dust on an angle to intercept our course. It's your only chance. You'll be in it within two minutes!"

"Roger," Cardwell replied. Then—"Well, heave those goddam blocks, Larry! What the hell are you waiting for?"

Buchanan heaved the first block. He watched it intently as it sailed away toward the galactite, dragging the plasti-cable through a lazy arc behind it. There was something very strange about that twenty foot-piece of metal aside from the fact that it was a high speed intergalactic missile. Lumpy, bristling with splintered fragments of cosmic dust patina owing to extremes of heat and cold—yet damnably spherical.

The first magnablock made contact—and then everything happened at once.

At the point of contact, an explosion occurred. Buchanan saw a blinding, blue-white flame propagate almost instantly outward. In the same moment, he felt himself propelled upward from the deck, and when he looked downward he saw that it was Cardwell who had flung him upward after snipping the thermatron cables to his magnetic shoes.

Fortunately, he collided with one of the light buffer girders and held on.

"Vince!" he yelled. "You fool! Look at that galactite! It's *contraterrene*—"

He stopped, staring at the galactite, speechless. A hole had been opened up in its side. He caught a glimpse of metal decks and bulkheads

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in miniature, and of tiny skeletons drifting away into the void.

But Cardwell was not looking. He did not notice that this far flung sphere was the manufactured product of an extra-galactic race of Lilliputians. He was attacking the uprights with a cutting torch—the particular uprights which held the girder to which Buchanan was clinging.

In the imminence of death, thought Buchanan, you don't think of anything but survival. Yet he was thinking of that alien space ship from another universe and what a loss it was to his kind not to be able to study it. But how could you study matter that was contra-terrene?—its electrons positive and its protons negative. This incident proved the existence of intelligent life elsewhere in Creation at a time when Mankind was beginning to become afflicted, subjectively, with monophobia.

And it proved more—that Haufek's inverse mass theory was no longer theory. In that single blast of terrene versus contra-terrene, an infinite horizon had opened up.

"Vince!" he almost screamed. "Don't do it! Wait!"

One upright had already come loose and Cardwell was clumping across the deck under him to attack the other one. Buchanan wondered if he could propel himself from one girder to another. If he missed he would continue unhindered into space, because Cardwell had also cut his lifeline. Yet if he continued to hang on to this one—

Blast struck them as they entered the region of dust. Their tremendous velocity caused all resisting surfaces to accumulate the dust for hundreds of thousands of kilometers along their path in each second of time, thus creating a total impact effect that tore at them with irresistible force. Buchanan clung to his girder while space grew dim around him. The stars shone through as ghostly reflections on the surface of turbulent water. The "galactite" disappeared into the hurricane and was lost forever.

But he could see Cardwell. The first impact of the dust blast knocked him off his feet and he slid helplessly aft. In his flailing about, he switched on a rocket engine and the raft began to spin into the teeth of the storm. Simultaneously, Cardwell drifted off into space. There was still his plastic lifeline, but it crossed the exhaust stream of the rocket and melted. Cardwell was drifting swiftly away into the dim depths of the storm.

"Cardwell!" It was Dr. Jayne, calling from the *Carlona*. "Cardwell! Buchanan! Are you all right out there?"

Cardwell did not reply, and neither did Buchanan. The latter merely watched his companion fade out of sight.

Out of sight, in the life-consuming depths of the great Alone—never to be retrieved. Buchanan sweated.

This was what he had wanted to happen to Cardwell, back there on Teran. But it had been the conclusion of emotionalism. Out here in the

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vast cold was logic. A man's life. . . The life of a man who had shared most of his adventures and half his dreams. . .

Abruptly, the dust cloud passed and the stars gleamed down with all their clean, sharp brilliance. He propelled himself to the deck and snagged a cargo hook with his grapnel. Working aft, he reached the controls and switched off the rocket motor. The raft continued to spin aimlessly through space.

"Buchanan to *Carlona,*" he called. "Come in!"

There was no reply. His eyes searched space and found her. She was a tiny speck of silver against the stars, about five kilometers away. Evidently the dust storm had damaged the antenna in some way. She was out of communication with him and moving farther away all the time.

"Vince!" he called.

For answer, he heard Cardwell chuckle in amusement. "Couldn't hold out, could you?" he replied.

"Shut up, damn you!"

There was a long moment of silence. Then—"All right, Larry. I'll let you *think.*" He chuckled again, from out of the emptiness. "There's a difference, isn't there, between your thinking and my thinking. Emotionally you are a big overgrown kid, Larry. You are incapable of the clean, clear stroke of decision. *You* can't let me die, can you? Anne or no Anne. I know you, Larry. I've known you all my—"

"I said shut up!"

"Why don't you turn off the receiver switch? That should help you—"

He did turn it off, but he heard himself panting slightly inside his helmet. He knew that if he waited too long, to go after Cardwell would take him out of range of the *Carlona.* That accidental firing of the rocket motor had consumed more fuel.

He waited . . .

He wanted to wait, to prove to Cardwell he could do it. Yet—what price proof?

He switched on the radiophone again. Silence. Deathly silence. Except for the faint hum which told him Cardwell's transmitter was working.

Why didn't he speak, damn him! Was he risking his life—even willing to die—to prove he had the stronger personality, always had been stronger? Even in the face of death, *must* he be "Vincent the Invincible?"

"All right!" he yelled, at the top of his lungs. "You can die, Vince! Die!"

Silence. Only the faint hum from Cardwell's transmitter. It was a waiting game, and the thread of chance was growing taut.

Buchanan gritted his teeth. He could hear his labored breathing, even the throbbing of his pulse in his head. The difference between murder and repentance now was the difference between an old complex and freedom from it forever. But what other complexes would be substituted? Was a strong personality like Cardwell's capable of happiness? Hadn't he sacrificed something ir-

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retrievably on the barren altar of materialism?

Damn you!—he said to himself. You're going to wait and then go back to the ship without him—because he was out of range!

And live the rest of your life under the suspicion of cowardice—a murderer!

But he waited. And it was too late.

"Larry!" came Cardwell's voice, worried now. "Damn you! What are you waiting for?"

"Too late!" cried Buchanan, brokenly.

And Cardwell, adrift in the bottomless abyss, heard Buchanan crying. Too late, also, Cardwell thought, for remorse. His own remorse. Larry Buchanan was his friend.

"Larry!" he called. "Maybe I brought this on, myself. I forced you into it. I—"

"You damned fool!" yelled Buchanan. "Do you think I broke down because you're going to die? It's because—it's too late for me to win! *You* have won, as you always have! But someday—"

"What do you mean?"

"You win, Vince! I'm going to come after you!"

"But you can't! You'll be unable to overtake the *Carlona!*"

Now there was silence from Buchanan as he started to manipulate the rocket controls.

"What's the use, Larry! Are you crazy? Two of us lost out here isn't going to help!"

"Shut up!"

"Larry, you crazy damned—"

Buchanan shut him off.

CARDWELL must have expected to see the raft emerge out of the sea of stars within minutes after Buchanan's suicidal declaration. But it never came. An hour passed, and he must have known his air supply was waning. He must have been convinced that he was lost, that he would actually die out there in the emptiness. If he broke down and screamed for help or confessed his sins or addressed his Maker, no one ever knew.

But Buchanan guessed what Cardwell's reactions must be when he saw the swift space yacht, *Surprise*, pull into view. Once the shock of relief had passed, his methodical mind would start working on a new series of grave probabilities.

For example, the appearance of the *Surprise* meant that the "cat" was out of the bag. It meant that others had had to help Buchanan out of his salvage gear and into a regular suit, that the whole crew had been awakened out of hibersleep and made aware of Cardwell's situation—and that several of the others had accompanied Buchanan to barge thirteen to help him refuel and launch the roboship.

More important still, it must have meant to Cardwell that Governor Pomeroy was now aware of Teran's conspiracy.

Yet when Buchanan finally got Cardwell safely inside the *Surprise* and helped him to remove his gear, he was unable to discover a single

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definable expression on the other's face.

"Got a stim?" he asked.

Buchanan handed him one and lighted it for him. His hand trembled with the lectrolite, but Cardwell's did not as he held the stim tube between his fingers and calmly blew smoke into the air. Buchanan tore his gaze from Cardwell's with an effort and returned to the controls.

During the trip back to barge thirteen, a distance of over a thousand kilometers, Cardwell did not speak a word—nor did Buchanan.

CHAPTER 9

GOVERNOR POMEROY had been confined to his room. The others went into conference immediately after Cardwell's return.

They were all there. The dust storm had activated the general alarm and everybody was up. They all looked up at Cardwell and Buchanan as they came into the recreation room along with Puckett and Haufek. All except Raymond Hopper, who could not lift his gaze to meet the others' eyes.

"So it was Hopper who squealed," said Cardwell.

"We might have concealed our use of the *Surprise*," said Winzer, "but that transstellar message he picked up just before we hit the dust broke him down. He went to Pomeroy and confessed, trying to save his own skin."

Cardwell glared at Hopper's bowed head, then he turned to Dr. Jayne. "Let me see it," he said.

Dr. Jayne handed him the sheet on which the deciphered codatape had been pasted. Cardwell read:

T.S.28. .6.6.49S . .1527. ..TSO 71... Central Government, Earth, to Governor Wainman, Teran . . . Teranian officials here confessed Lydecker heads revolutionary conspiracy. . . Subject him submonitor and advise list of collaborators . . .Death penalty./. .Confirm. . . Signed 0-1 . . .

Cardwell looked up, handing the message to Buchanan. "Well," he said, calmly, "let's calculate."

"We have," interrupted Makowski. "The message left Earth on June sixth, 2549. It has been under way three point eight years. It will reach Teran six months from now. They will submonitor Lydecker, and if his mind doesn't crack they'll dig out everything they need to know from his subconscious. Our names will be beamed out and the *Carlona* will be posted as a renegade ship."

"But assuming that the answer will be beamed back immediately," said Dr. Jayne, "a year will pass before it reaches our present position, and by that time we will be eighty six hundredths of a light year beyond this point."

"In other words," said Cardwell, "we've got to reach Mars before the return message does. Has anybody graphed this?"

"We didn't have to," said Olmstead. "At maximum delayed accel-

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eration we'll still be a year behind it and the whole Sol System will be crawling with government ships looking for us."

"Of course," Makowski suggested, "we might sneak into the *Belt* and strike out with the *Surprise* from there."

"Yes?" said Haufek. "We'd have a poor chance of running back to Teran ahead of Cosmium powered ships with their 95-C velocity. We'd never make it."

"Just a minute," said Cardwell. "If the *Surprise* is equipped to take over a whole Martian colony it may be able to take over a government ship. We could transfer the stolen Cosmium to one of their own superfast ships and head for Teran."

"What about Pomeroy?" queried Buchanan.

"Hell!" ejaculated Olmstead. "If we're nothing but pirates, let him walk the plank!"

"Maybe," said Cardwell, "he might be of advantage to us if we converted him."

Even Hopper's head jerked up when he heard that statement.

"Why not?" Cardwell asked them. "We have years ahead of us yet before we get to Sol."

THOSE years went faster than anyone might have suspected. Hibersleep was the main reason, as well as the time contraction effect experienced at "high C" velocity. There were events which marked this shortened period of conscious awareness —events which were related either to Nature or to human affairs, as recorded in the *Carlona's* log:

10-17-53. . . One year under way. Velocity 85.5-C. Distance from Alpha Centauri, 6.149 x 10 to the 6th million km. (.65 light year).

Communications Officer Raymond Hopper committed suicide by crawling behind the radiation shields and permitting direct exposure to the reactors. Ship's Doctor Jayne diagnosed case as *dementia praecox* augmented by interstellar agoraphobia. . .

4-22-54. . . . Velocity 85-C. Distance from Alpha Centauri, 11.352 x 10 to the 6th million km. (1.2 light years). Traversing area of magnetic stress. Lost two barges, which were retrieved with space raft.

2-15-55. . . Velocity 83.7-C. Distance from Alpha Centauri, 18.92 x 10 to the 6th m. km. (2 light years). Passed through meteoric cloud. Two meteors of critical size penetrated hull, damaging gravitron, electronic units of gravitron generators and port side absorption banks. Short circuiting developed insulation fire next to section 7 fuel tanks, but emergency reduced by automatic action of CO2 system. Chief Engineer Olmstead hospitalized with critical burns. Assistant Engineer Buchanan estimates repairs will require one year, with hibersleep.

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Time had an inexorable way of passing. The years dwindled down. There were secret talks whenever Buchanan, Haufek and Puckett made up the three man crew.

By this time he had told his two intimates all about the "galactite." They had spent many hours discussing the possible origins of the Lilliputians. Haufek hypothesized that Nature had placed the greatest space insulation of all between island universes, because some of them might be contra-terrene. The proof of the existence of contra-terrene matter stirred him to refine his inverse mass theory.

"Suppose," he told them, "that a given object, such as a space ship, could be given such a strong acceleration that it would be equivalent to an irresistible force? For practical purposes we can refer to this as instantaneous acceleration. It is theoretically possible that the matter composing the ship would not have time to disintegrate and be dispersed in terms of heat because there again it would be limited by the infinite mass factor of C-velocity. There might be another alternative: mass inversion. In other words, the energy would be absorbed in the process of inverting matter, changing it to contra-terrene—just like turning it inside out. I also think that Nature would insist on spreading some of this energy out over space, and after inversion the ship would find itself halfway across the galaxy without having approached infinite mass. Another inversion would bring it back to normal matter. Ergo, an inversion drive ship would be able to visit terrene or contra-terrene worlds."

Puckett wrinkled his forehead and looked askance at Haufek. "Out here," he said, "guys get space happy. Dr. Jayne was talking about dreams and delusions being mental defense mechanisms against insanity. Do you feel all right?"

"Don't let him kid you," put in Buchanan. "You keep after that math, Bill. You'll get your chance someday. ."

IN JANUARY of 2558, the *Carlona* reactivated its gravitrons at a distance of six trillion kilometers from Sol. The resultant repulsion of the Sol System's gravitational field began to act as a brake, and they began to lose velocity.

It was at this time that they intercepted the long awaited message from Teran relative to Lydecker. It read:

T.S.12. .4.22.54A. .2730. .TSO 3. . . Governor Wainman, Teran, to O-1, Central Government, Earth . . . Re ur T.S.28. .49S. .Lydecker irrational due submonitor treatment . . . Subsequent submonitoring suspected members Independence Party reveals subversive plans on long term basis. . Ten death sentences issued. . Nucleus of resistance eliminated. .Full report mailed I.S.S.Jupiter. .4.20.54A. .Signed Wainman. .

"Well," commented Cardwell,

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"that relieves us from suspicion. We're clear to continue as planned."

Buchanan and Haufek were on deck with him at the time. Their furtive glances at each other proved that they were in agreement on one point which Buchanan expressed.

"You know, that's a very neat little message," he said, "but like all other elements of this conspiracy it looks like it's done up in too neat a bag."

Cardwell elevated his gaze without elevating his head. "What are you gibbering about?"

"I'm saying that Wainman's message is a lie! If you submonitored that many people one of them would *have* to break down and tell the truth. And if Wainman knows the truth what's he covering up for?"

"Did it ever occur to you," Cardwell replied, slowly, "that it wasn't necessarily Wainman who sent this message?"

Haufek's mouth dropped agape. "You mean—"

"I mean, the Revolution may have started, back on Teran. So naturally Lydecker would cover us."

Buchanan scowled, slamming a fist into his palm and pacing the Bridge. "Something still smells," he complained. "That message was sent only six months after our departure. The Party couldn't have made *that* much headway, not with all those new troops coming in on the *Roosevelt*."

"Time will tell," said Cardwell. There was an annoying gleam in his eyes as he stared both of them down.

By August of the same year (Earth time), the *Carlona* was approximately one billion kilometers from Mars, approaching the solar ecliptic at a minus sixty degree angle. Time tables on some two thousand known asteroids were studied, and it was finally decided to send the *Surprise* to a small, erratic body known as *Balder*. In five months it would be close enough to Mars for telemeter control of the secret space yacht. Inasmuch as arrival time for the *Carlona* was November, this would give them two months on Mars to accomplish their purpose.

The problem of Governor Pomeroy was not quite settled. For several years he had appeared to be convinced that Teranian Independence was a justifiable cause, after sufficient indoctrination by Haufek and every member of the crew. Yet it was the general consensus of opinion that he was the weakest link. There were some, including Puckett, Haufek, Olmstead and Makowski, who advocated manufacturing an "accident" for Pomeroy. As time grew shorter, this issue gained proportion.

"Our plans have changed," Cardwell announced to Buchanan and Puckett one day, while the others were sleeping. "It's been decided that a crew will accompany the *Surprise* to the asteroid as we don't think we can smuggle in the remo gear."

"*Accompany it!*" exclaimed Puckett. "How?"

"Don't worry. She has magna-beams, and you can take barge thirteen with you—with sufficient air and provisions to keep you comfortable for months, until you get our signal.

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We'll jimmy the log and say we lost a couple of men *and* the barge. That means the space raft will have to disappear, too, to make it look good."

Buchanan watched Cardwell closely. "Why the sudden change?" he asked.

"We can't take chances. Teranians on Earth squealed before. They can pull a 'Hopper' on us at the last minute. If you don't get a signal at the prescribed time it will mean the rest of us have been taken into custody. In that case the mission will rest with you alone."

"Who," said Puckett, "is *'you?'* "

"Well, I think you, yourself, Pete, are a good choice, being the barge man—and maybe Haufek, as he's familiar with the equipment."

"You say this has been decided," said Buchanan. "Who made the decision?"

"The rest of the men, while you two were in hiber. I'm not taking the sleep any more from here on in, and I've gone over this with all of them."

"What was the decision on Pomeroy?" queried Puckett.

The three of them were on the Bridge, and Cardwell was reading the Dopplerscope. He turned around slowly.

"He's with us," he answered.

"As long as you're taking precautions against the unforeseen," suggested Buchanan, "why not send Pomeroy with the *Surprise?* If he's with us, as you say, he should be glad to have a chance to prove it."

"Now you're talking!" exclaimed Puckett. "I'd *like* to take care of the Governor!"

Cardwell's brows lowered and he glared at the other two impatiently. "We can't do that for two obvious reasons. First, it would be difficult to explain his disappearance to the authorities and we'd all be submonitored to get the truth. Secondly, he'd be of no help on the *Surprise.* He'd be a detriment."

"Vince," said Buchanan, "you wouldn't be covering up for the Governor, would you?"

Cardwell tensed. "What the hell are you talking about?"

At that moment, a tinkling bell sounded on the "Ring Deck," and all the lighting on board dimmed and brightened in a slow but persistent rhythm.

"Ship call!" exclaimed Puckett.

The three men looked at each other in tense excitement. They were being hailed by some other ship!

Wordlessly, they started toward the Communications Office.

Codatape was spinning rapidly out of the receiver, already deciphered, and the three men stood next to each other, handing it along as they read:

I.S.40. .8.20.58S. .1335. .CO 1. . . CGPS 10 to I.S.S. Carlona . . . Prepare to be boarded and impounded for investigation. .Rendezvous twenty-one days Sol time, present course and deceleration. . .Signed . .Captain Leaky, Solar Patrol. .

"CGPS ten," muttered Cardwell. "Central Government Patrol Ship. That type of vessel is a young battle-

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Governor Pomeroy

ship, probably Cosmium powered by now. You can understand now why it was a good idea to change our plans. Somebody has squealed."

"But why are you so goddam calm about it!" exploded Buchanan. "What are you going to do?"

Cardwell merely raised his brows and said, "I prefer to remain calm. In fact, we'd better send an answer."

"What can you say!" exclaimed Puckett.

"While I'm sending the message," said Cardwell, "I suggest you wake up Haufek and start planning to stock barge thirteen for its trip to *Balder*."

Puckett left in a hurry, while Buchanan waited to see the reply Cardwell was sending. As the copy tape reeled out, he read:

I.S.22. .8.20.58S. .1420. .SC. . . . I.S.S.Carlona to CGPS 10 . . . Confirming ur I.S.40. . .Will comply . . Aware nature of investigation and have taken action. . Conspirators apprehended on board but killed resisting arrest. .as witnessed Governor Pomeroy. .Formal report available. .Rendezvous as your instructions. .Signed. .Captain Cardwell. . .

The transmitter clicked off and silence pervaded the room. Buchanan looked up from the tape to find Cardwell regarding him warily.

"Again I say, prett-y smooth, Vince! Too damned smooth!"

Cardwell rose slowly to his feet and faced him. "You've been hinting at something for a long time," he said. "Now get it off your chest! What's eating you!"

"All right!" exclaimed Buchanan. "You asked for it! Here it is! You're still no altruist, Vince. I'm positive there's something bigger behind all this than Teranian independence—for *you*, that is! You couldn't hitch your wagon to any star unless it was 24 karat gold! You're too smooth an operator!"

"You don't make sense. Make yourself clear or shut up!"

Buchanan tensed. "Don't tell *me* to shut up! I've got a stinking feeling that the rest of us are playing pieces on a board of Empire—*your* Empire!"

Cardwell reached out his hand to take hold of him, but Buchanan swung with his fists. The other recoiled, tripped over the chair behind him, and fell. Buchanan jumped on top of him.

For five minutes there was no time

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for conversation. It was a fight that had been coming on for years. Tall, powerful Teranians, fighting with no holds barred.

Finally, Buchanan sat astride Cardwell, panting heavily. His lips were split and bleeding and one eye was beginning to swell shut. One side of Cardwell's face was gashed open from having collided with one of the control panels.

"Now talk, damn you!" shouted Buchanan. "Let's have it, once and for all! Who is the Master Mind behind all this?"

"I am."

Buchanan kept looking down at Cardwell's face, and the face, which had not spoken, began to grin upward at him in grim amusement.

Then Buchanan dared to turn around. In the doorway, gun in hand, stood Governor Pomeroy. But he wasn't grinning. He was scowling, and his trigger finger was tense. In the same instant, Cardwell threw a leg around Buchanan's neck and pushed him backward to the floor.

"That's a good position for you, Buchanan," said Pomeroy. "Now *stay* there! We're going to put you in hiber."

"And when you wake up," said Cardwell, with mock enthusiasm, "you will find yourself on board the *Surprise.*"

"So what!" exclaimed Buchanan.

Pomeroy stood over him, still scowling darkly. "You will do exactly as we tell you," he said. "You'll have to, you see, because I can always place myself in 'safe-custody' and pretend to tell all. You, Haufek and Puckett are our *chosen* conspirators. Your only ticket back from *Balder* will be obedience—and to the letter!"

Buchanan's face reddened with rage. "What's *your* cut in all this, Pomeroy!"

"For one thing—it is Cosmium, the Metal of Power," answered the Governor.

"But in the interests of a higher purpose," grinned Cardwell.

"Such as what?" Buchanan sneered.

Cardwell was quite calm and matter of fact when he raised his eyebrows and said, "Conquest, Larry. The conquest of Sol *and* Alpha. Don't you think that's a pretty good reason for leaving my dear *wife* for a few short years? Of course when I return to Teran I'll be in a position to make it up to her!"

Buchanan lunged upward to grab Cardwell's throat, but the butt of Pomeroy's gun descended on his skull.

(To be continued)

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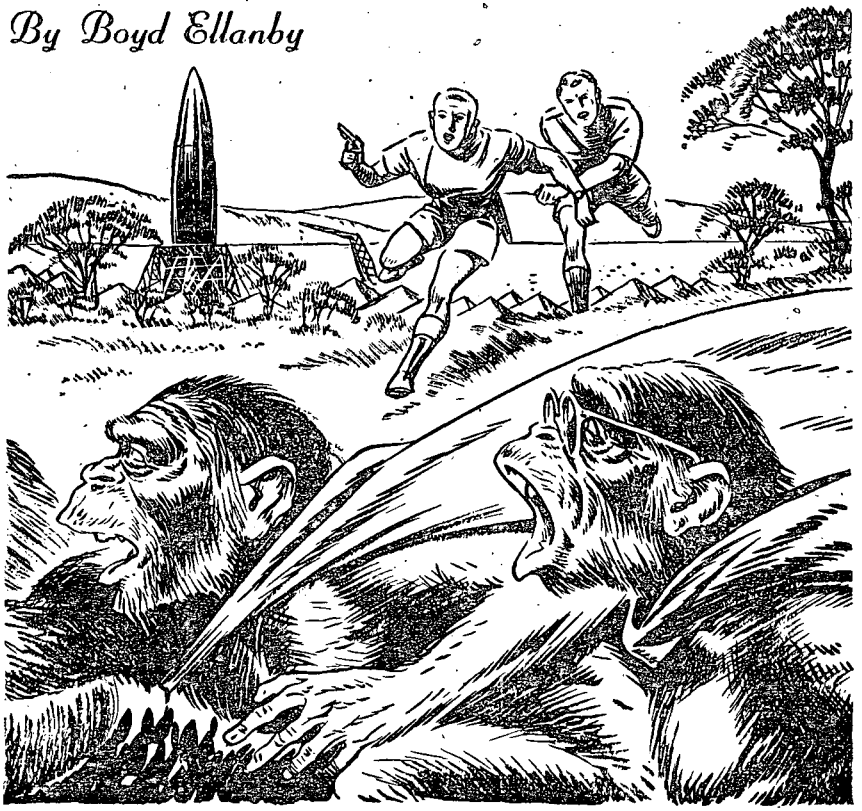
Faced with extinction, the chimps came to Man for aid—Man, who had rendered three-fourths of Earth uninhabitable—only to find that mankind was struggling hopelessly with the same problem.

HERITAGE

By Boyd Ellanby



Illustrated by Joe W. Tillotson

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THE two old grandfathers loped along the forest path as fast as they could, following the messenger who was now nearly out of sight. But they knew the way.

"Why hurry?" said Yama. "We know what is happening."

"Yes. But I always hope that *this* time—Have you had an answer to your radio message?" Dr. Koa's shoulders were stooped, and his wide mouth had a melancholy droop. He was nearly breathless from the swiftness of their walk, and from anxiety.

"No answer as yet," said Yama. "If I did not know how efficient our communications are, I would wonder if they failed to hear us."

Ahead of them in the path they could see the brown outlines of the thatched hospital hut. They walked faster.

"You think too well of *Homo sapiens*, Yama. We have never received any word from them, although we know they have preserved some knowledge of science. No, those men would let us die here, and never waste a thought on us. They have no souls."

The messenger waited in the doorway, and they entered the shaded room where a young mother lay on a brushwood cot, pale and despondent. She looked up at them, but did not speak. Beside her lay the body of an infant.

"How long since?" said Dr. Koa.

"It never breathed," she whispered.

Yama beat one clenched fist against his open palm. "Again!" he said. "So few children are born! And so few of them live! Koa, *why* can't we find some plant which will give us the vitamin necessary for fertility?"

The mother turned her face away, and Dr. Koa shook his head. "I have done my best," he said.

IT was near sunset when the two walked away from the silent hut, and back towards their fields. They stopped to watch the black shadows lengthen over the wheat, and Yama turned to his friend.

"Can't you offer us any hope, Koa? Aren't these new crops any better?"

"Look at them!" said Koa. He waved his hand towards the rows of maturing grains, green and yellow in the soft evening light. "Look at the pale green on the ripening wheat. It will nourish us, certainly, but—And the maize is doing well." He stopped to strip a yellow ear. "Full-kerneled, rich, but I hardly need to point out you how low the vitamin content is, as in all plants grown under this African sun. Those murderers! What is to become of my grandson? And his child, my great-granddaughter?"

Yama sighed. "What is to become of all our future grand-children? You know the answer,—unless those men will help us. And yet, the plants look so healthy!"

"All their virtue is in their appearance," answered Koa. "But try to see inside them for a moment. We will have a good yield of wheat, and an exceptionally large crop of maize and yams, which will provide us with the calories our bodies need, but even the wheat is deficient in the fertility vitamins—the H complex."

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Yama glanced across the wheat to the field beyond. "I notice that you have a really excellent stand of Loofa this year."

Koa smiled. "Yes, that should take care of our demand for sponges for some years to come. We shall be able to keep our young clean, at least, but there will be fewer and fewer babies to wash. No, at present I have nothing to report but failure, but I shall not give up trying."

The sun had set and a bright star shone in the east. Yama turned his back on the ripening fields. "Let us go back. Tomorrow the council meets again."

"I shall oppose you to the end, you know."

"It is not me your are opposing," said Yama. "It is the lives of our children."

The colony were assembled in the council glade, and they looked expectantly at Yama.

"Our message has not been answered," he said. "Shall I try again tonight?" He heard some cries of "Yes!", but a few of his audience drummed their feet against the logs they squatted on, and shouted "No!"

Yama paced the low wooden platform. His wise old eyes were set deep under his wrinkled brow, his ears flew from his head like wings, and his beard with its sparse tactile hairs on cheeks and chin was gray. Only the protrusion of his lower jaw distinguished him, in physical appearance, from his chimpanzee forbears who had survived the irradiation of Nagasaki, a thousand years ago. He held up an arm for silence.

"Have you forgotten, neighbors, how much we need their help?"

"Death is better than dishonor!" shouted old Dr. Koa.

Yama shook his head, "You and I are old, Dr. Koa, and to us death is perhaps not unwelcome. But what did that young mother feel, yesterday? What does your young grandson think? As individuals we are not important, but the survival of our race is. We must try again."

Dr. Koa jumped to his feet. "Why didn't they answer our message? Must we demean ourselves by asking a second time?"

"What other choice have we?" asked Yama. "How many grandchildren do you have, Dr. Koa?"

"One. You know him. Dow."

"And how many children does Dow have?"

"As yet, he has only the one."

"Exactly. Each of us old men is seeing our families die out. You have one grandchild, I have two, but which of our friends has more than two? In the days of our ancestors, we all had large families, but in the last two hundred years they have been growing smaller and smaller. Our people are weaker, and even our young men have not the strength and energy of their great grandfathers."

"That's not our fault!" shouted Dr. Koa.

"I am afraid," said Yama, "that it will do us no good to try to assign the fault to anyone. But we must face the brutal fact that our fertility rate has declined to the danger point,

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and our population has reached a number so small that unless we can find a good source of vitamin H, we shall soon become extinct, like the passenger pigeon which once lived in North America, or like the heath hen of New England. The plants of tropical Africa, where we are forced to live, are fatally deficient in the H complex."

An erect figure rose from the audience and advanced to the front. Kraka, the historian, was taller than his companions, and he wore a light cape over his shoulders and across his chest to conceal his greater density of hair, a man-like trait of which he was ashamed. He spoke in a high, precise voice.

"As a historian, I should like to put this matter in its proper perspective. Run-away emotions should have no place in our decision. I am impressed by the fact that in some respects our captive ancestors were more fortunate than we, although we have returned to the Africa from which they were stolen, and we live here by the Congo in a culture they never knew. As a result of the genetic accident that happened to one of them as they cowered in their cages at Nagasaki, we can speak, while they could only howl and emit emotional cries. Also, having acquired a larger neopallium as a result of that mutation, we can direct our motor activities with sustained purpose, as they could not. Most important of all, perhaps, we have gained a concept of time and we are aware of the infinite past—but of our tragically limited future, too. Our forbears were never faced with a problem of such gravity as the one that confronts is now.

"Whatever our emotional attitude may be toward those men who have flown here from the North Pole, we have the duty of keeping our race alive. We must send another radiogram."

"I'll have no part in parleying with barbarians," said Koa. "They'd probably shoot us on sight, if we ever gave them the chance. What do you expect to gain?"

"The lives of our race," said Yama. "You know that the temperate climates, where our grains might regain their vigor, are hopelessly radioactive, and are barred to us and to *Homo*, alike. Our only hope is that the Polar men may have discovered a way to make the H vitamins synthetically, and that they will teach us their methods."

Dr. Koa stood up. "May I speak?"

At Yama's nod, he ran lightly across the grass, but he had not yet reached the platform when he stopped, and jerked his head up at the sky, then covered his eyes and crouched to the ground.

A blazing light so intense that it dimmed the sun flashed across the sky. A roar like an earthquake beat at their ears, and a few seconds later came the muffled crash of an explosion. The leaves on the trees quivered, the branches rattled. Then there was silence.

Koa got to his feet. "Pan save us!" he whispered. Trembling, he tottered to the platform and raised his hand,

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but the audience were shouting and moaning.

"Silence!" he shouted. "The danger is past. That detonation was far away from us!"

The voices subsided to a murmur as he paced back and forth, his long arms clasped behind his back. The African sunlight, no longer made pale by a light greater than itself, glared through the trees to illuminate his gray head.

"After that explosion," he began, his voice hoarse and quivering, "what more do I need to say, even to the most optimistic of you? The men from the Pole are evidently experimenting again with atomic power. Their ancestors waged the Atomic Wars, a thousand years ago, and made barren wastes of three great continents. Only here in Central Africa and in Australia is life still possible. It is obvious that the Polar men are preparing to devastate what land still remains. How can you even consider asking the help of those murderers, even to preserve our species?"

Kraka rose in protest. "Your emotions are speaking, not your mind, Koa. You have no evidence at all for such a conclusion. We already knew that the men have preserved a knowledge of some of the sciences, but without positive evidence I will not believe that they are so insane as to turn loose nuclear radiations in the only place where they can still live. Are we to commit suicide because of crimes devised by their ancestors a thousand years ago?"

"They are their fathers' children!" shouted Koa, but Yama moved forward to calm him.

"We do not know what caused the explosion," he said, "but it is evident that these men are scientists, and we are not. When our own survival is in question, we cannot stop to consider abstract moral issues. If those men know how to make the H complex, we must ask their help. Does a dying child question whose hand gives his aid?"

"Send another message!" someone shouted.

"I shall send a second radio message tonight. If we do not receive an immediate answer, let us send some of our own people to talk to the men, face to face. It is possible, of course, as Dr. Koa has suggested, that they will murder us as they have so often murdered curious animals who wandered into their city, but I am willing to take the chance. It is also possible that they never received our message, for our science is meager, after all. Do you all agree?"

Dr. Koa's "No!" was scarcely audible among the cries of "Yes!"

"Your wishes are clear," said Yama. "We shall try again."

IT was near midnight. In the ceremonial hut Yama rose to his feet, easing his cramped limbs.

"We have waited long enough," he said softly. "They do not answer. I shall leave at dawn. Koa, will you come with me?"

"Never!"

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"Kraka?"

"Certainly. At this crisis in our history, it will give me great pleasure to note the order of events."

In the moonlit doorway a lithe young figure appeared.

"Dow!" said his grandfather sternly. "What are you doing here?"

"I should like to visit the Polar men, grandfather. I am curious."

The old man sighed, and turned his back.

ON the eastern shore of Lake Tanganyika lay a gleaming city of tents, nearly five hundred of them, their plastic slopes reflecting the sunlight like a field of mirrors. On a hilltop a few miles from the nearest tent stood Yama and Kraka, dignified in their feathered ceremonial capes, looking towards the lake. Dow glanced at the city, but he was too excited to stand still, and capered about in the trees and bushes. His mouth quirked in perpetual good humor, and his small eyes were alert for every brilliant flower, every strange animal in the forest.

His elders were sober as they stared at the distant city of tents, and looked on to the south where a cluster of factories loomed, and beyond the factories to a broad cleared landing field.

"Let us go on," said Yama. "From now on, Dow, you must try to restrain yourself, and act with the dignity of a father of a child. We must all move quietly."

For the next hour they padded silently down the wooded slopes towards the clearing where the city lay. Ahead, they could see the edge of the clearing, when Yama held up a warning hand. They stopped, immobile.

A young woman was running from the city into the forest. Her hair streamed behind her shoulders, and she was crying so bitterly that she could not see where she was going, and ran into a tree. She did not stop crying, only changed her direction slightly, and stumbled on. She ran against a second tree and stopped. Brushing her eyes, she made an obvious effort to suppress her sobs, and looked up towards the bits of blue sky that could be seen through the leaves. She shook her fist at the sky, then drew a pistol from the pocket of her dress, and slowly raised it to her forehead.

Without a word, Yama and Dow darted towards her.

"One should never interfere!" called Kraka, but they ignored him and tried to seize the girl.

From the direction of the city they heard shouts and the pounding of feet, but Yama and Dow remained, struggling for the pistol. The girl fought with terrible strength, and suddenly the pistol roared.

A crowd of men burst into the forest.

"The chimps have got her!" shouted one.

"Kill them!"

"Don't shoot, Forrester!" cried an authoritative voice. "She might be hit." A tall man in blue linen shirt and shorts, Captain Junes strode forward, his pistol pointed at the strug-

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gling group.

"Good God!" he said. "It's Margot Smith. Major Smith's wife!"

Forrester made a flying tackle at the two animals and dropped them unresisting to the ground, but Captain Junes had a moment's battle before he subdued the hysterical woman who still clutched the pistol.

"But it's my gun!" cried the girl. "I have a right to shoot myself!"

"Shall I polish off these anthropoids, Captain?" said Forrester.

"No. Wait. What's going on here? Did these animals attack you, Margot?"

She shook her head, sobbing.

Kraka had joined the group, and was seized from behind and his arms pinioned.

"If I may explain—" he said in his high, pedantic voice.

The crowd surged forward, but Captain Junes waved them back. "Everybody back to work. Things are under control. What happened, Margot?"

She raised her chin in defiance. "Oh, what's the use of anything? Jim was killed last night in that launching accident . . . We've been married nearly ten years . . . No children . . . There's nothing to live for! I wouldn't want to live on another planet, without Jim, without any children. I thought I'd just get out, without any fuss. Then these two animals jumped me from behind and spoiled my aim."

An elderly man with a cane limped through the crowd and knelt beside her, caressing her hair. "Margot," he said, "would you have abandoned your father?"

The Captain's face was grave. "I'm glad you've come, MacDougal," he said. "Your daughter needs you. Will you take her to the hospital? See that she's cared for."

"And now, what'll we do with these chimps?"

"If I may explain, Captain," said Yama and Kraka, together, and this time Captain Junes really heard.

"Great Space!" he said.

"We were only trying to protect the young woman," said Yama.

The Captain rubbed his lined forehead, and shook his head. "They talk," he muttered. "I'd heard rumors of talking chimps, but I never believed them. Well, get out of here now and count yourselves lucky to be released. We don't allow animals at our camp."

Yama bowed slightly. "We have come for an answer to our message," he said.

"What message?"

"Our radio message. We sent to you for help."

"I don't know what you're talking about. Now turn around and go back where you came from. I have enough worries—"

A young man ran down the path. "You're wanted at once, Captain Junes. Streklovinsky is back."

The Captain turned to go, but Yama persisted. "Captain! We have walked some hundreds of miles to see you. Have we earned no right at least to elementary politeness?"

He sighed. "Too many things hap-

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pen. I can't seem to think. All right. Forrester, run ahead and say I'll be right along. As for you, follow me, all three of you. It's against regulations, but I made them and for once I'll break them. I'm badgered to death, right now, but if you'll wait in my office, I'll talk with you."

IN the cool air of the Captain's plastane tent, Dow fidgeted, but Yama and Kraka stood quietly near the doorway, and watched Junes as he set at his desk and looked into the anguished face of the yellow-haired giant sitting opposite him.

"But what happened, Steklovinsky? What went wrong this time?"

"Captain, I just don't know. It was just like the others. It got off the ground all right, shot up a few thousand feet, then dived, and exploded."

"And Major Smith with it, I understand."

"And Major Smith with it."

"Next time, if you please, you will come to me directly, and not take on yourself the duty of notifying the next-of-kin before coming to me. Margot Smith tried to kill herself."

The chief engineer raised his head. His clear blue eyes defied the Captain's regard, but his broad shoulders drooped and his mouth was tired.

"If we keep on at this rate," Junes went on, "we'll kill off our population in launching accidents long before they die from lack of vitamins."

"Do you think I enjoy blowing people up?" said Steklovinsky. "Why blame me? I'm doing the best I can, and using the best help that the camp provides. Why don't you try turning that cold critical gaze on old Doc MacDougal, for a change? You know very well that all he does is putter around in his greenhouse, mooning over his hybrid plants, and sometimes going out for long walks in the forest. He calls it doing research, but at the speed he's going at it, he'll still be doing research on doomsday. And now that Margot's in trouble, he'll spend all his time looking after his daughter, and he probably won't go near his plants. If we only had some decent chemists who could make the stuff, we wouldn't need to be launching space ships and killing people."

"Calm down, Stek. You might just as well say that if there hadn't been any Atomic Wars we could be living a peaceful life in North America. MacDougal is doing all he can, and I'll try to get Margot interested in helping him. It will give her an interest in life. Of course it would have been better if Polar Station had had a chemical unit, or even a combined physics and chemistry unit, and if the Wars hadn't started so soon, they would have had all the sciences represented there. At least we started with a fairly well-stocked library. And if we're going to be forced to leave the earth, be thankful that we've preserved a knowledge of nuclear physics, and have been able to extend it."

"There are days," said Stek, "when I wish we'd lost that too."

"Excuse me," said Yama.

"Don't interrupt us," said Captain Junes. "I'll tend to you later."

"Holy hydrogen!" said Steklovin-

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sky. "Talking chimps! The world is going crazy. Maybe we'd better leave, and head for the nearest planet as fast as possible. Or go back to the Polar regions. Life can't have been so bad there."

"Our great-grandfathers would not have agreed with you. Life at Polar Station was pretty rugged. That's why they migrated to Africa, remember."

"It might still be preferable to the cold deserts of Mars. I'm tired of struggling against the inevitable. We want to migrate to another planet, we ought to be able to, we've apparently got what it takes, but most of our ships crash on trial. Why not just give up?"

Captain Junes spoke sharply. "No more of that, Stek. We don't give up until we're forced to. But if you don't do better on the next trials, we won't have any choice. Don't you realize that in the two hundred years since our people came here from the Pole, the population has declined to half? There aren't many more than two thousand of us left. No, Stek, we're on a spot. You must keep trying. I'm afraid that if we don't manage a successful launching this year, we never will, for we're not really making any progress."

"Perhaps we could help you?" said Yama.

They ignored him.

"Well," said Steklovinsky, with a grin, "shall we give up trying for heaven, and take off for Australia?"

"And be blasted out of the sky as we approach? No, Stek, there's no question that they mean it when they say that they're already overcrowded and won't take in any more immigrants. Our problem just isn't that easy. We can stay here until the race dies out, or else we can launch that ship and head for the stars. Haven't any of your boys got any ideas as to what goes wrong?"

He shook his head. "We've been over our computations a million times."

"Just the same, let's go over the blueprints again."

Yama coughed. "May we offer our assistance?" he said. Both men turned to look at him.

"You're becoming a nuisance," said Junes, "but I suppose I might as well listen to you and get rid of you. What do you want?"

"We have come for an answer to our messages," he said. "Since you did not reply, either time, we have come ourselves to see you. But from your reception of us I judge that we are not welcome, and that you did not wish to reply. No doubt we have committed a breach of your customs in coming here, but must we be treated like criminals?"

"But we don't allow animals here! Our people are afraid of them, and you are probably in actual danger of attack when you leave here. Ordinarily you wouldn't have gotten a hundred yards out of the forest before being stopped. Under the special circumstances of your arrival, because you saved Mrs. Smith's life, you managed to get here alive. Where do you come from? What do you want?"

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"First, why did you not answer our message?"

"What message? We never heard a word from you."

"We have radioed you, twice, asking for help. But we know very little science, and are probably lacking in skill."

"But who are you?"

"I am Yama," he said. "I have spent my life in the study of the stars, but now that I am an old man I am merely the leader of my people. This young man is Dow, and beside me is Kraka, one of the few who has preserved a history of our colony."

"But how do you happen to speak English?"

"We come from the Congo Station," said Kraka, breaking in. "We were sent there just before the Atomic Wars, about the time your people were settled at the Polar Station. When one of our remote ancestors was mutated by the irradiation of Nagasaki, his children inherited his altered genes, and they learned the language of the people who occupied the country at that time,—Americans. And so it became our language. The Congo Station was arranged so hastily in the few days before the War broke out, that the only scientists who were able to reach safety there were ten physiologists who had taken our people with them for study. The wives of these men never arrived, because of the War, and after the men died, we chimpanzees have tried to preserve the colony."

"But why have you come here?"

"We have come for help. Our race is dying for lack of the fertility vitamins, the H complex. We are not scientists. We know a little physiology, that is all, but we knew that you men from the Pole have preserved other sciences, and we hoped that you could teach us to synthesize the vitamin."

"We can't help you," said Junes.

Yama sighed. "Dr. Koa warned us that you would refuse."

Junes' laugh had a bitter sound. "I didn't say we *won't* help you. I said we can't. We don't know how to synthesize the vitamin. We wish we did. Our race is dying, too. We're in exactly the same situation you are. You heard that woman this morning. She's one of hundreds."

"And yet," said Yama, "you haven't given up hope."

"Hope dies hard. We're going to migrate to another planet, and try to find climates capable of growing the plants which produce the H complex."

"You mean that's what we'd like to do," said Steklovinsky. So far, we haven't got very far off the earth."

"That's right. But we're going to keep trying as long as a single man of us is left."

"I had never thought of that!" Yama whispered, his old eyes glowing. "We could migrate to the stars! It is our only hope. Explain your difficulties, Captain. If we worked in cooperation, we might succeed in preserving both our races."

"A chimp offers to cooperate!" said Steklovinsky. "I'd try Australia before I'd parley with a chimp."

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Yama looked up at the broad shoulders and short yellow hair. "We share a common feeling, young man," he said. "Only the most extreme necessity compels us to consult with members of a species who are responsible for making three-quarters of the earth too dangerous to live in."

"Mind your manners, Stek," said Captain Junes wearily. "No doubt you mean well, Yama, but we can't take you with us, and you can't help us. If the only science you people know is physiology, you'd be of no use whatever in launching a space-ship."

"Are you sure?"

"If we were able to locate a plant which produced the H vitamins, I would have no objection to telling you, but MacDougal regards the job as hopeless. I suggest that you return to your home in the Congo, live as you always have, and forget all about us."

"Africa is the original home of the chimps," said Steklovinsky, "If it was good enough for your ancestors, why isn't it good enough for you?"

Kraka stared at him curiously. "Does every community have one like you, I wonder? You are almost as vindictive as Dr. Koa!"

"Then hurray for Dr. Koa," said Steklovinsky. "All this talk isn't getting us anywhere, and we have enough worries without adding yours to ours. Keep on palavering as long as you like, but I'm going to think above space-ships for a while." He leaned back in his chair and closed his eyes. Yama meditated on the tired-looking face. Then he, too, relaxed and closed his eyes.

The room was silent. Captain Junes picked up a pencil from his desk and twirled it between his hands.

Young Dow watched the pencil, fascinated by the rapid motion. Suddenly, for the first time, he spoke.

"Teach me to pilot the ship. Then it wouldn't crash." Then he looked at the floor, shy before the eyes turned on him.

Junes snapped the pencil and threw the pieces onto his desk. He stood up. "We're wasting time. I don't understand you creatures. First you say you sent us a radio message, which we never got. Then you say you haven't any scientists. Then you offer to help us launch a space-ship. It doesn't make sense. We still have all the man-power we need, and unless you have some nuclear physicists or space engineers, you have nothing to offer that's any good to us. And even when we do manage a successful launching, the most we can hope to do is to take off all our own people who are under the age limit we've set. There wouldn't be room for you, and even if there were, most of our colony would object on general principles to taking along a cargo of animals."

Yama blinked, opened his eyes, and leaned forward. "But you don't seem to realize that without us you will never succeed!" Junes laughed, but Yama persisted. "You haven't even decided, yet, which planet would be the best one to aim for."

"I suppose you can tell us?"

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"Of course. It puzzles me that you should still be hesitating, when Venus is so obviously the right one. Underneath her dust clouds there are large areas of temperate climate where wheat and other plants could grow to supply the H complex in high concentration."

"How do you know that?" said Junes. "From your years of gazing at the stars?"

"But it is obvious! How do you not know it?"

"I never had any faith in astrology. Anyway, you won't get the chance to check up on your theory. We can't take you."

Steklovinsky was frowning and muttering to himself. "There's nothing wrong with our theory . . . The computations check . . . Ships ought to work . . . But they just don't. Something about the design ought to be changed. What? Where? And the crews never live to tell us."

"Your ships are all right," said Yama. "Your problem is simply a matter of physiology."

"Holy hydrogen!" said Steklovinsky. "What does physiology have to do with driving a space-ship?"

"It is evident that that particular science was not represented at Polar Station," said Yama. "I suggest that we make a trial. On the next launching, let young Dow here be one of the people in the control room. I cannot be positive, but I don't think your ship will crash."

Steklovinsky's lip curled, and he looked at Dow with contempt. "What can a chimp do that our men can't?"

"He could pilot your ship, Mr. Stek, once you have taught him how."

"But how do you know that will make any difference?" asked Junes.

"Oh, you almost make me lose my patience! How do I know the sun is shining, or the wind blowing? It is obvious. Does it matter *how* I know? The structure of our bodies is somewhat different from yours, I should remind you. One of our ancestors, after all, was mutated at Nagasaki. Yours weren't. You apparently know amazingly little of the workings of the human body. Why not make the trial?"

Steklovinsky shrugged his shoulders, and Junes raised an inquisitive eyebrow at his chief engineer. "Drowning men clutch at straws," he said. "What have we got to lose? When did you plan to make your next trial, Stek?"

"It will take at least a couple of months to get ready."

"Well, I think we might make a deal. As things are, we're stopped cold, and I'm inclined to grab at any possibility of help."

Turning to his visitors, he spoke briskly. "All right, Yama, we'll try a cooperative project. If you—what shall I call you? We would call you chimps, but in our colony the word is not used as a respectful one."

Yama's eyes crinkled. "With us, also, 'men' is a term of ridicule and disrespect. I suggest that you call us what we call ourselves: the People."

"All right. If you People want to cooperate, we'll let Dow learn the technic and be co-pilot on the next

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trial. If the trip is successful, we will agree finally to take you with us to Mars or Jupiter, or wherever we decide to go."

"Venus," said Yama.

The two old People fastened their feather capes about their shoulders. "We shall explain matters to your grandfather and your wife, Dow. And before two weeks are gone, we shall return."

FROM the forest glade of Congo Station, Dr. Koa advanced to meet the travelers.

"I should never have let Dow go with you," he cried. "I am oppressed, day and night, with the shame, that my own grandson has become a traitor to his race."

Yama patted him gently on the shoulder. "You look at the wrong end of the stick, old friend. Only by offering his help could we hope to save our People. You call it treason. We call it cooperation."

Dr. Koa shook his stubborn head, as he walked beside them. "Well, at any rate, I see you got back alive. I'm surprised that the men didn't shoot you in the back as you left. What do you think you accomplished?"

"I explained that to you in my message, Koa. They don't know much organic chemistry, and they can't make the H vitamins. That hope is dead. The only chance for either race is migration to Venus."

The old man shuddered.

"Are the other young men ready to go?" asked Yama. "They can learn the technics too, and will be very helpful to the men."

"Yes. There are fifteen of them, ready and waiting. You can all leave in the morning. But this is a terrible thing you are doing to us, Yama, taking my grandson and our finest youths away from us."

"Then come back with us! Whatever their ancestors may have been, these men are not incurably evil. They are rough, and as prejudiced as you are. But they have a rude sense of justice, and are certainly not so blind to their own welfare as you are. Come back with us, and you can look at these specimens of *Homo sapiens* for yourself."

"Never! Men devastated the earth, and now their descendants are robbing us of our children."

"They have an expert who grows plants, just as you do," said Yama persuasively. "You might learn something from him."

The old man was silent, and Yama's voice softened. "We share your feelings, Koa. None of us wants to lose our young people, and none of us wants to abandon our heritage, the earth. But we must. Now, go call the young men together."

At dawn, the fifteen young people said goodbye to their families and, led by Yama, loped silently along the forest path towards the reddening east. Before it was noon, they stopped to eat and to sleep for a while. Yama woke suddenly at the touch of a hand on his forehead.

He opened his eyes to see the melancholy face of Dr. Koa bending over him.

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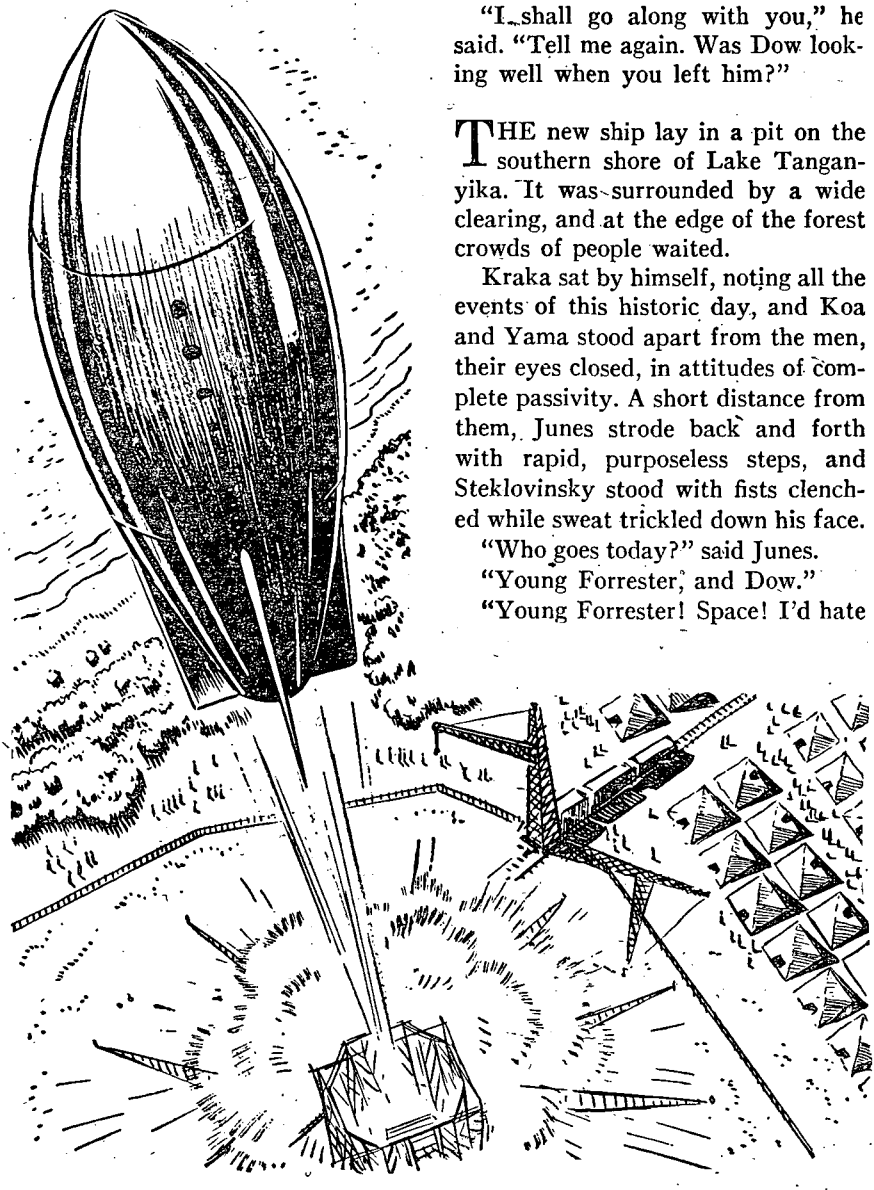

"I shall go along with you," he said. "Tell me again. Was Dow looking well when you left him?"

THE new ship lay in a pit on the southern shore of Lake Tanganyika. It was surrounded by a wide clearing, and at the edge of the forest crowds of people waited.

Kraka sat by himself, noting all the events of this historic day, and Koa and Yama stood apart from the men, their eyes closed, in attitudes of complete passivity. A short distance from them, Junes strode back and forth with rapid, purposeless steps, and Steklovinsky stood with fists clenched while sweat trickled down his face.

"Who goes today?" said Junes.

"Young Forrester, and Dow."

"Young Forrester! Space! I'd hate

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to loose him."

He strode over to Yama. "If the ship crashes, Yama, you'd better streak for the trees. I won't lay the blame on you, but I may not be able to control my people. They don't trust you."

"I don't think the ship will crash."

Koa would not look at the Captain, but he spoke: "If the ship crashes, with my grandson aboard, I shall hold you responsible. Look out for yourself."

Junes paced away, and peered nervously at the field.

"They seem to take so long! What are our chances, Stek?"

"The same as before."

"No, Mr. Stek," said Yama. "They are much better. Our young Dow, remember, is co-pilot today."

From the lake's shore came a sharp detonation. A flash, a roar, and the ship rose, her gleaming nose pointed straight up to the sky. Up, up, and out of sight.

They held their breaths, still as statues, as the seconds passed. Then Steklovinsky yelled and leaped into the air. "She's still up! She's still going! She hasn't crashed yet!"

Old Koa sank to the ground and rested his forehead on his knees. Yamā smiled and touched his shoulder.

"They're safe," he said.

SIX hours later the ship returned and slid gently into her berth. When the space-port opened, the gangplank fell into place and a white-faced Forrester staggered out, while Dow ran easily behind him, a wide grin on his impish face. Forrester fell to the ground, and Junes knelt beside him.

"Stek, get a stretcher! What happened, Forrester? How did you manage? It was a great flight, boy. Tell us."

Forrester did not open his eyes. "I don't know what happened," he muttered. "Ask Dow. I blacked out."

"Blacked out? Then how could you control the ship?"

"Didn't. I was out. Ask Dow."

"Take Forrester to the hospital," said Junes. After the stretcher had gone, he looked around. Dow and his grandfather were close in conversation, and Yama stepped forward.

"Let me explain," he said. "It is really very simple, just as I thought. Your failures before this have been caused by the physical peculiarities of your men. The little I know about the conditions of a space-lift I have learned from you, of course, but it is clear that the initial acceleration which is needed to lift the ship off the earth is enormous, in the neighborhood of ten G, and the strain was too great for your men to stand. Under such stress, they fainted, lost control of the ship, and with no one to man the jets the ship of course could not escape the atmosphere, and it crashed."

"But we know all about the stress and strain of gravity," said Captain Junes. "And by our calculations it ought not to be too much."

"For us, and for a few of your own colony, it would not be too much. You

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understand gravity, but you don't understand the inheritance of physical types. Purely by chance, most of your people have inherited from their ancestors at the Polar Station a type of body physique which is not equipped to sustain the demands of space conditions without damage. They are of the wrong somatotype."

"But Dow did not lose consciousness!"

"No, Dow has inherited a different type of physique. Remember, my people are a mutated stock. We are smaller in size than you, lighter in weight for our height, and our nervous systems have a slightly different organization. The acceleration is uncomfortable for us, but it is bearable. We don't black out under the strain. With one of our people at the controls, your ships will never crash."

"Do you mean to stand there and tell me," shouted Steklovinsky, "that you've tricked us into launching ships so you *People* can get off the earth, and leave us behind? Never trust a chimp!" He clenched his fist and lunged forward, but Junes stopped him.

Yama remained calm. "Do not lose your self-control," he said. "I am sick of this mistrust. You saw that Forrester was not injured, only tired. If the ship had continued on its way, he would have recovered consciousness after it reached full speed, none the worse for wear. Some of your other men, on previous trials, have not been killed by the journey itself, but by the crash and explosion after they blacked out."

"Some of them?" asked Junes. "What do you mean by that?"

Yama went on in his mild voice. "We can pilot the ships for you, and most of you can travel in them in perfect safety."

"Are you trying to drive us mad?" said Junes. "Stop being so mysterious. What do you mean by some of us, and most of us?"

"Is it possible that you do not realize, even yet? Do you not know how human bodies vary in innate stamina? You surely know, for instance, that your old people cannot stand the shock of a journey into space. Their hearts would stop. Kraka and I from the beginning have been resigned to the fact that when the trip is made, we cannot go. Our bodies are too old. We must remain behind."

"Of course I know that," said Junes. "Our colony has long ago agreed that everybody past fifty will have to stay behind. None of us are happy about the arrangement. In fact it's stark tragedy, but everyone has accepted it, knowing that their children will have a chance to carry on the race."

Yama's response was scarcely audible. "It is very sad. But the situation is worse than you think. Not all, even of the young, can go safely. Some can stand the acceleration with only a fainting spell. But there are some who would die."

Junes stared at him in horror. "Then we haven't solved anything! We'd resigned ourselves to leaving

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the old behind, but now you tell us that some of the young are not fit to go! Our families will be broken up, separated forever! Then what have we gained?" He whirled to face the gleaming ship, quiet in her berth, and his shoulders sagged in dispair.

DEPARTURE was only two weeks away. The rows of tents were quiet, a city of the dead, peopled by somber figures as morose and silent as ghosts. People got ready for the migration as though they were preparing for a mass funeral.

Many tents already wore black streamers, drooping from their roofs, and every day, as other families learned that one or more of their members had been refused the health certificate which he must show before his name could be added to the passenger list, the black flags multiplied.

Far to the south seven giant ships were nearly completed, ready for the great exodus. Most of the People from Congo Station had arrived at Tanganyika,, and chimpanzees and men worked together at readying the ships, but they found no joy in their labors. Not more than a hundred inhabitants were left at Congo Station,—old people who could neither make the space journey, nor face the grief of saying goodbye to their young ones.

Near Captain Junes' tent the crucial testing station was set up to produce a small replica of the acceleration and gravity forces to be encountered in space. Each day lines of human beings entered, submitted to the excruciating tests, and merged pale and trembling, some of them weeping, but some full of happiness at the news that they were space-worthy.

Kraka was visting his human friends for the last time before they left the earth. He sat in Captain Junes' office, asking questions of him and Steklovinsky, taking notes on the procedures, and requesting every item which ought to be included in his history.

"It seems futile for you to be working so hard at your history," said Junes.

Kraka smiled serenely. "You mean, because in a few years there will be no one on earth to read it, or to care about it? There may not be. But that does not affect my pleasure in keeping the record. The joy of scholarship is in the work itself. When I die, I will die content, knowing that I have not slighted my work, even on account of a tragedy such as this."

"You have my respect," said Captain Junes. "I only wish you could be going with us."

"My old heart would never stand the trip, I fear."

"Is there anything else you want to ask me? Any data we've forgotten?"

"No, I think not. Wait! A small point, but I should not like to leave the question unanswered. What has become of the young woman who tried to kill herself on the day we first came here?"

"Margot Smith?"

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"I can tell you," broke in Steklovinsky, grinning. "She is quite all right now. I've been looking after her, and the fact is, we're going to be married, and begin our new family on Venus. She passed the space-test last week, and just last night she agreed to marry me."

"I am happy to know that," said Kraka.

"Congratulations, Stek," said Junes. "And on passing your own test, too. You hadn't mentioned it."

"Me? Oh, anybody can see at a glance what a big husky guy I am. I imagine I can stand ten G better than most of you. Good luck, Kraka!" He offered his big hand to the historian, and strutted out the door.

Dr. Koa walked in, slowly. "I have said goodbye to my grandson," he said. "Now I should like to go home with you, Kraka. I have nothing to live for."

Captain Junes stood up and extended his hand, which Koa accepted with distaste.

"I wish you thought better of us, Koa. Surely you will admit that ours has been a successful collaboration?"

His old eyes flashed. "I am proud that I, at least, never cooperated! You men have a strange idea of success. To have our families broken, our people separated. To be forced to leave their homes here on earth and go to live on an alien planet, and turn their backs forever on their heritage!"

"But isn't it success, to preserve the race?"

"It is necessary, I suppose. But it is not success. There is no good solution. I shall return now to look after my plants, and forget the smell of men."

Captain Junes turned red. "I regret that you still hold us in such contempt, but I will not attempt to change your mind. Before you go, though, wouldn't you like to see some of our own work on plants? You've always refused to meet MacDougal or to go near his greenhouse, but he might have something to show you."

Koa hesitated. "I suppose there's no harm in looking. A day's delay cannot matter, compared to the years of solitude ahead of me."

Junes pushed the button on his call-box. "Dr. MacDougal to my office."

The elderly man limped in with the aid of his cane, and glared from under his shaggy eyebrows at the visitors.

"I'd counted on being left alone for the rest of my life," he said. "You know how much I dislike being interrupted at my work."

Junes' manner was gentle. "I know, MacDougal. But two weeks from now there will be few people to interrupt you. Meanwhile, an hour or so can't matter. Here is Dr. Koa, who would like to see your herbarium. He, too, has spent his life in looking for new sources of vitamin H."

"The fertility vitamins!" growled Koa.

"Whatever you call it, we've both wasted our lives," said MacDougal. "Come along."

He led the way to his greenhouse,

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and they strolled among the rows of potted plants.

"So we're to be driven from the earth," said MacDougal, "because the ground has stopped producing what we need. Because of the crimes of our ancestors, the very earth disowns us. My son-in-law was killed in a launching accident, my only daughter is going to marry again and leave me. Well, I'm glad I'm too old to go. I wouldn't like the change. What do you think of my plants?"

"I, too, shall stay with the earth," said Koa. "It is my heritage. But I shall miss my grandson. I wish I had had the knowledge, when I was young, to grow plants like these, artificially."

"With proper knowledge, and a chemist's training, I might have synthesized the vitamins instead of trying to grow them. You and I, Koa, are old, blind men, groping in the dark with blunted fingers, and our time is running out. And yet, to find what we were looking for, all I'd have had to do, probably, would be to link together a couple of benzene rings with a side-chain a yard long, to produce the true H complex. But I don't know how. What's the matter?"

Koa had paused in his walk. "Your words are strange to me. I'm just trying to see the picture." They went on, and before one cluster of green leaves Koa began to laugh.

"What are you laughing at?"

"This plant here, in this pot. Why are you growing it so carefully? We grow it by the acre at Congo Station, and make sponges out of it. Why does it interest you?"

"The *Luffa utilans?* I know it's common here in Africa, but I have no particular reason for growing it except that it is an interesting specimen. Here are my real prizes." He pointed to a plant with small, broad green leaves, lightly veined with yellow. "What do you thing of my *cucumis chito?* It produces one of our favorite fruits."

Koa bent over, stared, and closed his eyes.

LATE in the afternoon, as Yama and Kraka were resting in Captain Junes' office, the door opened slowly and Steklovinsky staggered in, supported by the slender arms of Margot Smith. His face was white and haggard, and he slumped into a chair without a word. Pale in her black dress, Margot addressed the Captain resolutely.

"Captain Junes, please remove my name from the passenger list."

"Great Space, Margot, what's happened? Have you been in an accident, Stek?"

He tried to laugh, but failed, and his voice croaked with fatigue. "Yes. An accident. I flunked my test."

"But I thought you'd passed it weeks ago!"

"No. Just got around to it today. A big fellow like me, and can't pass the test! They say I'd die on the way. And a little slip of a thing like Margot will get through all right. They say I'm the wrong somatotype."

Junes bowed his head, and bit his lip.

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"If he stays here, I stay too," said Margot.

"Not on your life," said Steklovinsky. "Just because I'm no good is no reason you have to be tied to the earth. You go on, marry some better man, and have a big family."

She still looked at the Captain. "Take my name off the passenger list, please!"

"Stop! I can't think! How can we get along without you, Stek? Are you sure they didn't make a mistake?"

"No. No mistake. I can't take it. Guys of my somatotype don't leave the earth,—and live."

All three were gloomily silent. Then Margot began to cry, hopelessly.

Yama rose from his place in the corner and spoke sadly.

"I am sorry for you, Stek. At least, you have made it possible for the others to reach the stars. I should like to go now, for a few hours. If you will excuse me, Captain Junes, I shall retire to the forest and send a message back to Congo Station, telling them of the final preparations, and relaying the final goodbyes of their children. They will be waiting to hear from me."

Junes came out of his abstraction. "You mean to say you People lugged a radio sending set all the way with you from the Congo?"

Yama looked puzzled, and then smiled. "I suppose you are making a joke," he said. "It is hard for me to remember that men like to joke, just as we do. Yes, you may say that I carried it with me all the way from the Congo. How could I leave it behind?"

"I don't understand you," said Junes.

"I don't understand you, either. But I can see what you must be thinking. A small box? With a peculiar arrangement of metal wires? What a strange way to send a message!"

"Evidently your radio is a very different model from ours."

"Model? I feel as if we had suddenly stopped speaking the same langauge. We use our radio to send messages to those of our People who do not live near us, and to receive word from them. We have always used it in the same way, at any rate for a thousand years, in the way our ancestors from Nagasaki taught us."

"I wish I could see it."

"Certainly! Although this is hardly the best situation in which to work it. We usually prefer the forest, or our ceremonial hut. Kraka, will you join me?"

They retired to a corner of the tent and squatted on their haunches. They placed their finger-tips together, covered their eyes with the finger canopy, and bent towards each other until their foreheads touched. They closed their eyes and became quiet.

After a long silence they rose and turned to Captain Junes. "We have told our People what is happening here, and they have answered that they are happy for their children, but sad that they must be separated from them forever."

"Was that the kind of a radio mes-

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sage you sent me?" asked Junes.

"Of course."

"No wonder we never got it! We can't read thoughts. You People are sending thought messages!"

"Are we? We have always supposed it was radio. That is what our ancestors called it. We know so little science, of course, but the knowledge of how to send and receive messages is one thing we have been proud of keeping."

The door swung open and MacDougal rushed in.

"Junes! Junes!" He dragged at a reluctant Koa, behind him.

"Junes, we've made a tremendous discovery! Koa and I together, in my lab. I was showing him my plants. He *sees* things. Junes, we've found it!"

"Found what?"

"The H complex! The fertility vitamins! The works! I don't know how he does it, Captain, but he sees *into* things. I mentioned vaguely what the organic formula for the H complex would have to be like, and he understood at once. Suddenly he said that if we'd take the loofa plant it could supply the tocoquinone group, which he could *see* there, in its structure—"

Junes slowly rose, his eyes wide, staring at Yama. "Is that the way you 'saw' that Venus was the best planet for us to go to?"

"Of course," said Yama. "Doesn't everybody see things that way?"

"Is that the way you absorbed a thorough knowledge of space mechanics in about five minutes' time?"

"Certainly. That first day when we met Mr. Stek, when he withdrew from the conversation, his mind showed us his problems in launching the ship."

"Clairvoyance!" Junes whispered. "If we'd only known! We knew a little chemistry, but no more. We weren't at Nagasaki. We aren't clairvoyant."

Young Forrester burst in at the door. "Well, Captain! I'm feeling chipper again, and ready to take on all Space with one hand. When does the great migration take place?"

The Captain spoke with deliberation. "It won't take place, Forrester."

Margot's face was radiant. "Does this mean we can all stay on the earth?"

"Yes. Even Dr. Koa will have to admit that *this* collaboration was successful. Our amateur knowledge of chemistry, and Koa's clairvoyant mind, have joined forces. Thank God it's not too late. Together, we can make our vitamins for ourselves, and both our races can remain on the earth."

"We may still want to explore the universe," said Yama. "It will be a glorious achievement when our two peoples, working together, visit the stars. But not to stay. After a visit, it is always good to be able to come home."

THE END

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Illustrated by H. W. McCauley —

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A killer, and a young girl still in her teens; and both were running away. Born to a world of controlled climate and domed cities, what chance had they for happiness—or even survival—on this raw, untamed wilderness planet?

BABES IN THE WOOD

By

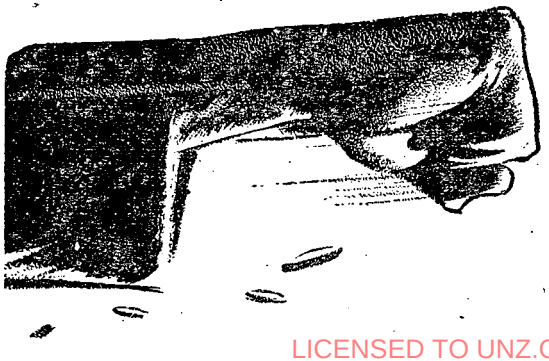
Gordon Dickson

THE dyed lips, the carefully coifed hair, and the elaborately patterned cloak made a brave showing; but the plain fact of her youth shone through like light through a curtained window. Jory Swenson swung away from her in a rage and cursed the hook, a thin little man who licked his lips nervously and squirmed under the tongue-lashing, but would not back down.

"You gutted fool!" stormed Jory. "Are you trying to get me vaporised for abduction? She's just a child."

The hook's little eyes jumped nervously from Jory to the girl.

"What of it?" he husked. "You're going off-planet. Nobody knows. No-



Jory's fist still clutching change, came out of his pocket swiftly . . .

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body'll care."

"What if we get picked up before we get to the spaceport?" snarled Jory. He swung abruptly back to the girl. "How old are you?"

"Eighteen," she said, in a small, thin voice.

"Aaah," said Jory, "don't lie to me." He half-raised his hand, threateningly. "You're lucky if you're fifteen."

She shrank a little, her eyes watchfully on his hand, but her voice was firm in answer.

"I'm eighteen."

"I tell you!" burst out Jory "Don't give me that. When did you run away from home?"

"Last week," she said.

"And your people have been looking for you for a week then," said Jory. "That's fine."

"Oh no," interrupted the girl quickly. "They sent me to my aunt's to live. But my aunt—she's dead. She died about a month ago but nobody ever told them and she'd already said in a letter I could come."

"Oh?" said Jory. "Oh?"

"And I'm eighteen," she spoke rapidly, as if afraid he would silence her before she had done speaking. "I've got a work card with my age on. I can prove it."

"Sure," said Jory, sarcastically. The hook tugged impatiently at his arm.

"How long you going to stand here?" he demanded. "The ship lifts in two hours. I tell you this is all the woman I could find you. You take her or you don't get anything."

"Woman!" spat Jory. Then shrugged. "All right. I'm done for anyway if I miss the ship."

The hook went to the door and whistled in his witness, a man as scrawny and unprepossessing as himself. The marriage ceremony was conducted in the hurried chatter of the hook's high voice and the papers signed in a sober silence. Jory paid the little man and turned to his new bride.

"Here we go," he said. "Pick up your bag."

Without a word she lifted the battered clothing box that held her possessions, and followed him out. They stopped under the night lights of the almost deserted street and Jory rang one of the automatic curb signals for a taxi. It came almost immediately and they rode to the spaceport in silence. It was only when they stepped out at their destination and Jory was reaching into his pocket for money to pay the fare that the taxi driver spoke.

"Say," he said, leaning out the window and squinting up at Jory's face in the pale, all-pervading glow of the landing lights, "aren't you the passer that Little Tommy's looking for?"

Jory's fist, still clutching change, came out of his pocket swiftly, and he hit the taxi driver with all his force on the point of his exposed jaw. Coins sparkled and danced ringingly on the concrete; and the man slumped backwards on the seat. Jory whirled to run, but the girl stood frozen, wide-eyed and blank-faced, staring at the unconscious driver.

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"No you don't!" snarled Jory. "You don't quit on me now!" And, grabbing her by one wrist, he jerked her away after him in a stumbling run for the looming bulk of the waiting ship.

THEY lay strapped in their cradles in a two-place cabin, waiting for the takeoff. Jory lay stiffly, his face upturned to the metal ceiling, listening to the girl cry. The sound infuriated him, the more so because he could do nothing about it, could not reach out to slap her into silence because of the straps that bound him in the cradle; and he dared not loosen the straps for fear of being caught unprotected at the takeoff.

"Shut up!" he said tightly through clenched teeth. The girl continued to sob.

"I didn't know—" she moaned. "I didn't know—"

"Didn't know what?" Jory grinned grimly, sarcastically, at the dull ceiling. "That I was a bad man? A nasty criminal?"

There was no answer but the sobs.

"Well I am," said Jory, still talking to the ceiling. "But you could have done worse, Kiddie. Believe me, you could have done a lot worse." There was still no answer and suddenly anger flamed up inside him and he felt an abrupt, furious need to justify himself.

"You little fool," he gritted. "You're lucky you got on a ship at all. There's half a dozen places that hook might have worked you into, instead—don't you know that? Do you think that just because you asked him nice to fix you up with a husband so you could get free emigrant passage, that he was obligated to just that, and not something a hell of a lot worse, but that would make him more money? At least you got what you wanted and you'll have a chance on a new world. That's more than half the Kiddies he contacts get.

"Sure, sure," he went on, calmed a little by the explosion of his own violence, and talking half to himself, now, "I was a passer, peddling weed to dopes in the spaceport clubs; and you were a baby going to school. I've done my share of cutting with the gangs and the most you ever did was sprinkle insect powder for crawlers. But there's no more of either for you or me. We're Mr. and Mrs. Jory Swenson, neither good nor bad, but emigrants with free passage to Mical V and a government bonus to get us started in the new life." A siren moaned suddenly through the ship, warning of takeoff. Jory's lips twisted in a final grin. "Look on the bright side of it, Kiddie."

Beneath them a vibration began to grow. It mounted and mounted until the ceiling began to blur before Jory's eyes, and the sudden thunder of the rockets cut loose. A giant leaned his weight on Jory, pressing him back into the padding of his cradle; and the breath came wailing from his throat as black specks danced before his eyes. The weight on him grew, grew, and grew until the whine of the gyroscopes cut through the din, tilting the ship to escape angle. The wall

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tilted and the cradle moved on its tracks, slamming to a new position. Unconsciousness took Jory.

HE floated in a haze of unreality and sickness. There was something wrong with him—with *him*, Jory; but he could not seem to do anything about it. Vaguely he was aware that the takeoff was over. That the changeover to second order flight was over; and that other passengers moved freely about while he still lay in his cradle. But something was wrong; for half the time he was not on the ship at all, but back on Calezo, running away from Little Tommy.

He was back on Calezo, peddling a package in the Sherwood Club and Pani had come up to drag him away from his prospect, to pull him into a dark corner of the club and tell him to get out. Pani was a muscle for the same outfit that Jory belonged to and a straight sort of man. He didn't have anything to gain by warning Jory—as a matter of fact, he was sticking his neck out to do it, but they'd known each other ever since Jory had been old enough to be in business, and they got along. Cook was dead, Pani had told Jory; and Little Tommy had taken over his outfit—which meant everybody but Jory was now working for him. Jory, he didn't like; and now, with no outfit to protect him, Jory was due for it. In the gloom of the corner, the sweat had rolled down Jory's back as he listened. A long time ago he had cut Tommy bad in a gang fight and the spidery little man remembered what the spindly child had suffered.

Besides, now that he no longer belonged to an outfit, the uniforms would be after him. There was no choice. He had to go off-planet—unless he wanted to hit the woods, and for a city child like Jory, that was unthinkable.

So, in the depths of his delirium he ran again and hid, dodging and ducking through the great rabbit-warren of the city, whose depths and shadows now spelled danger instead of safety; ran and hid until a hook that wanted money more than he feared Little Tommy had found him the wife he needed to get himself passage on an emigrant ship where Government authority would be his protection.

And in his delirium, the running and hiding went on and on.

IT passed eventually. He awoke at last to a spaceship cabin that was made of the stuff of solid reality and did not dissolve away into the fantasies of his nightmare. The girl was seated on her cradle, which had been dogged down and converted into a sort of couch, even as his had been flattened into a bed, and reading. She did not notice the new sanity in his eyes.

"How long have I been like this?" he said—and realized that he had not said it, but merely thought the words. He tried again; forced air from his chest with tremendous effort, opened his mouth, and moved lips.

"How long—" he croaked.

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Her head jerked up, she dropped the book and bounced to his bedside.

"Oh, you're better!" she gasped—then, hurriedly—"Don't move. I'll get the doctor." She was out the door and gone from the room before he could force out another word.

He felt a momentary flash of irritation that she had not answered his question but he was too weak to hang on to his anger. She did not return immediately, and he drifted into a light doze from which he emerged to find the ship's doctor standing over him.

"Better, eh?" said the doctor. He was a stocky, ruddy little man and he placed one set of fingertips on Jory's wrist, counting his pulse.

"How long—" repeated Jory.

"Eh?" said the doctor. "About a week and a half, ship's time. Looks like you're making this trip in bed, young fella."

"Got to get up," muttered Jory.

"No you don't," said the doctor. "You lie there and count your blessings, the chief of which is that you're alive at all. You must have been on the verge of collapse when you came aboard. How much sleep had you had during the thirty-six hours before takeoff?"

For a second the nightmare danced again just outside the range of Jory's vision.

"Don't know," he said numbly. "None."

The doctor snorted.

"Thought so," he said, with an air of satisfaction. "You listen to me and stick to your bed. Your wife can look after you. Give her something to do." He turned to the girl.

"You heard what I told him. Keep him quiet. If he won't stay down, see me." And, with a brisk wave of his hand, he was gone.

Jory sagged in the bed. A wave of exhaustion was sweeping over him, smothering him, forcing him down into sleep; but there was one thing he had to do before he yielded. With a great effort he turned his head on the pillow to look into the girl's eyes, and the question came out in a husky whisper.

"What's your name? I don't remember."

She blushed, suddenly all child, and dropped her head.

"Lisa Kent," she answered.

Lisa Kent, Lisa Kent. He hugged the sound of it comfortingly to him as he sank like a stone into the deep, obliterating ocean of sleep.

HE recovered slowly, not quite understanding what had made him an invalid. From what little the doctor would tell him (for that individual was one of the uninformative sort) he gathered that the punishment of the takeoff had been not the straw, but the beam which had broken the camel's back, and that if his exhausted condition had been realized at the time of boarding, he would not have been allowed to take off. So much for that. The really important thing was that he was better now and on the way to regaining his strength. The thought that he might have faced landing on a pioneer world in a bed-

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ridden condition touched him with a thrill of panic whenever he let himself think of it.

However, as time went on, he found himself thinking of it less and less. For some reason, possibly because he had dreamed so much of it in his delirium, the world of his past had acquired a strange unreality. It was if the illness had set itself up as a barrier to the past and everything that he remembered during it and before were part of a half-forgotten fantasy. More and more he found himself thinking of the future from the viewpoint of the hopeful colonist that his papers proclaimed him to be. The vision of a new life painted itself in a hundred different colors for his recuperating imagination and he discovered the beginnings of a new emotion inside him—he was starting to think of the new planet as a home, his real home, the first he had ever known. The barren seed within him was yearning to put down roots.

There was a new factor, too, in the now unstrained atmosphere of the tiny cabin, in the relationship between himself and Lisa—he could no longer think of her simply as 'the girl.' Although he remembered nothing of her attendance on him while he had been ill, and although she herself, never referred to it, both of them were forced to an acceptance of the fact that they had somehow become acquainted. It was just that, although there was no common experience which either wished to refer to, it was now ridiculous for them to treat each other as strangers. Even if one or the other had wished it, his continuing dependence upon her in the intimacy of the small cabin would have denied it. And they found themselves standing on a neutral ground of neither like nor dislike, in the truce of mutual tolerance.

In the weakness and peace of his slowly mending body and spirit, Jory lay propped up on his bed for long periods of time, watching her, as a prisoner, floating in the vacuum of unlimited time, might watch a spider spinning a web. And she, indifferent as the spider, washed, dressed, brushed her hair, waited on him, or sat reading in a sort of happy unconsciousness of his gaze.

He found her fascinating. For the first time in his experience he was entering into the complete, all around the clock life of another human being; and the pageant of her actions was an unvarying source of entertainment to him. He found her responsive to things of the moment, passing suddenly from one emotion to the other with the flickering interest of the young. More child than woman, he found her; but, at the same time, more woman-child than child. She seemed to have walled off everything outside the cabin, all past and all future, and to be content in the womb-like security of the present. She was happy—the doctor had been right—with the job of caring for him. It was a happiness that he first attributed to the childish satisfaction of having a doll to play with; but in this he later found he had been

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uncharitable. She, too, was experiencing the fascination of living a closely-knit existence with another human being.

They did not talk at first, beyond the few words necessary for him to indicate his desires and she to satisfy them. The neutral ground on which they found themselves was an uncertain one and neither was willing to take the first step toward testing its solidity. Inevitably, however, incidents occurred at intervals to throw their speech outside the limits of bare necessity; and it was across the stepping stones of these incidents that they gingerly approached each other, the suspicious wolf to the timorous colt.

The first of these incidents came upon them suddenly, catching them both unprepared in a conversation where neither knew what to say. It came about when Lisa laughed suddenly and unthinkingly at something humorous in the book she was reading, and, looking up, found his eyes upon her; questioningly, she thought. She made a little gesture with the book, explainingly.

"It—it's funny," she stammered in explanation. The expression on his face did not vary, but she sensed in him a struggle for words equal to her own.

"Oh?" he said harshly. And—after a long pause. "What was it?"

"Oh—" she said, and stared at him helplessly. His words were an invitation to read him the passage she had laughed at; and she longed to do so, but her innate timidity made the prospect seem appallingly dangerous.

"Oh—nothing much," she said, finally. He gazed at her for a moment longer, then closed his eyes, turning his head away from her. And she, like a rabbit relieved from the hypnotic stare of a snake, sank her attention gratefully back into the pages she had been reading.

However, the ice had been broken; and, when nothing more out of the way occurred during the next few days, she found herself hoping for a repetition of the brief conversation. Various plans flitted through her head but she shrank from their execution, afraid of the rebuff which she felt sure would follow. At last, when she had almost given up hope, Jory took the plunge she had been avoiding. He had been lying staring at the ceiling, following the 1800 hours meal, when abruptly, without warning, his voice shattered the silence between them.

"You don't get out enough," he said flatly.

Her heart leaped and thudded in her breast.

"You sit around the cabin here all the time," he went on, still without looking at her. "Why don't you go down to the recreation room now and then?"

"Why—" she stammered, "it's all right. I don't mind."

"You don't have to hang around here all the time," he retorted, his voice rising on a note of anger. "I don't need you that much."

Her mind hunted frantically for the proper thing to say and before

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she knew it the truth came tumbling out.

"But I like it here better!" she cried. Her words seemed to hang in the air between them for a long time. Then the tension in the room snapped like an overstretched string and Jory's rigid figure sagged slightly in relaxation.

"Suit yourself," he muttered.

IT was not long after that that he woke in the night hours, and lay in his bed, wondering what had wakened him. For some moments he could not locate the cause; and then it came to him, a slight, steady, rhythmical noise, half-heard in the darkness.

Lisa was crying. Very quietly, very easily, in a reasonless childish way, she was sobbing to herself with her head half-buried in her pillow.

He lay staring into the blackness and listening to her. And gradually the emotional impact of the sound reached through to him. At first it was merely another noise, disturbing, but not greatly so. And then it began to take on greater meaning; a tinge of accusation seemed to grow in it, a lost and hopeless accusation to damn him for strange reasons that he was at a loss to understand, but could not deny. His own emotions twisted and writhed, growing and increasing in violence until the verbal reaction came tearing from his lips and he yelled at her.

"Shut up!"

She shut up. And the sudden silence left him a little frightened.

WHEN he woke the following morning, he noticed that she avoided his eye, and the emotions of the night before returned in full force. She moved about the cabin as usual, taking care of the few housekeeping tasks that were required, but on this particular morning he read a reproach in every expression of her face, in every movement of her body. It was a new sensation to him, a hot and uncomfortable one, and he struggled against the illogicalness of it, struggled in silence and in motionlessness, so that he lay stiff and tight on the bed, his jaw clenched and his eyes staring straight ahead of him.

What bothered him, although he did not know it, was the urge to apologize; for his shouting at her in the night, for his unvarying harshness of word and action, and for everything else in their association for which his new-born sense of guilt accused him. He labored under a complete ignorance, however, of the apology as a social mechanism. It was, quite literally, unknown to him. Child of the gutter, youth of the streets, for him a verbal expression of regret meant only a forced acknowledgment of inferiority. So, the welter of emotions boiled within him, blindly hunting and tearing for an undiscovered exit.

He fought. He fought himself until the sweat stood out in great shining drops on his forehead, driven by his own savage determination to find a solution. What he wanted to do, he did not know, but he would do it if

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he had to tear himself apart in the process. Borne up on the red surge of his anger, he forced himself suddenly up into a sitting position and swung his legs over the side of the bed. A wave of dizziness shook him, but he grabbed the edge of the bed and held on tightly with both hands until it passed.

He shook his head to clear it, and felt Lisa's hands on his shoulders, pressing him back.

"You've got to lie down," her voice said, frightened.

"Let go," he said hoarsely, "sit down yourself. I'm going to talk." Her hands fell from his shoulders and as his vision cleared, he saw her back away and sit down on the edge of her bed.

"Listen," he said, "You were crying last night. You don't have to cry. Hear me?" She shrank slightly into herself.

"I'm sorry," she whimpered. He ignored her, going on talking, forcing the words from his lips by pure brute force, not knowing how to say what he wanted to say, but determined to express himself by pure weight and number of words.

"We got things to talk over. There's things you've got to understand. I'm not dumb—maybe I never learned much outside of gang stuff—but I'm not dumb, and I'm older than you. You and me—you and me—" he stalled, pawing the air for expression, "we aren't either of us what we were back there. And we aren't going to be what we were, either. Hear me? We're going to be different—new, sort of, if you know what I mean. And we can't—won't—be new until we can get over being what we were. You know what I mean?" He glared at her; and she nodded, a little scaredly.

"So," he went on. "We got to get over it. You and me, we're going to land where there's hardly any real cities. Just little places. And we're going to have to do some kind of work to stay alive. Now you—what can you do?"

She looked down at her hands, lying limply together in her lap.

"Nothing," she said in a small voice.

"Look," he said, desperately, "you've been taking care of me. You suppose you could be some kind of a nurse?"

She shook her head.

"You must have had some kind of idea, when you first thought of getting married up and emigrating. You must have figured on doing something. What was it?"

Tears brimmed up suddenly in her eyes as she raised her head and looked at him.

"I was going to be somebody's wife."

"Cut it out!" he shouted defensively. "You don't have to cry. I told you that." She blinked back the tears. "All right, so you were going to be somebody's wife; and he'd take care of things like working. It's all right; I get it. I don't blame you. It's just that I got to find these things out. What else did you figure on?" She toyed with the blanket edge on

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her couch.

"I thought maybe he could have some kind of a job—and we could have a house of our own—and—things," she ended vaguely.

"Didn't you think maybe you were a little young for stuff like that?"

"I'm eighteen."

"Don't lie to me!" he roared at her suddenly. "I don't care what you do, just don't lie to me." She shrank back from him, white-faced, but nodding her head.

"I don't care how old you are," he went on. "Just don't tell me you're eighteen when I know you're not."

Then suddenly—so suddenly that he could never after remember how it happened—she had thrown herself at him, and was kneeling, clutching at him, her head buried in the lap of his bedrobe and bawling with utter abandon.

"I will too cry if I want," she choked out in a muffled voice.

He stared down at her in complete bafflement and dismay.

"Hell—all right—cry then," he muttered, overwhelmed. She sobbed into his bedrobe; and, after a little while, he reached out gingerly and stroked her hair in a helpless fashion.

It was at this moment that the ship's doctor had the bad luck to open the door in the normal process of making his daily call. His head came in first, and he stared at the two of them.

"Get the God damn it out!" roared Jory and immediately felt better than he'd felt in a long time. The doctor's head disappeared, the door popping to behind him.

Jory went back to stroking Lisa's hair. It felt surprisingly good beneath his hand; and, although he still had not said what he had wanted to say, for some reason he discovered that he was now conscious of a vast relief.

AFTER that, during the remaining days of the trip, they talked. And, after the first few conversations, the speaking was mainly done by Jory and the listening by Lisa. She preferred it that way; for her story was briefly told. Nothing had happened to her beyond the fact that she had grown up and run away from parents who were not too bright and were not interested in her. Simply that; not unkind, not overbearing, but just not interested. She had strangled in the thin atmosphere of their affection; and, having heard about the hooks that paired off single people wishing to emigrate, had seized her chance and run off.

But Jory—he, although his home life had been as barren as hers, had done a thousand interesting things. She listened to chance accounts of his past life as if they had been fairy tales and she a five year old; and it only puzzled her that he, himself showed little or no interest in them, preferring to talk about other strange things that she could not understand. However, no matter what he said, it was Jory talking, and she listened to all with the same impartial, happy interest.

"You see," said Jory, one day, sitting on the edge of his bed and ges-

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turing excitedly at her, "you and me, we shouldn't be here at all. You understand? This emigration business is for the pioneers, people with itchy feet and the idea that the next planet is always a little better. They claim they're short of space back there, but hell, look at all the brush country that hasn't been touched yet. There's room for a thousand more cities; and the people that really want to settle are just going to stay there and build them, instead of shooting off like this.

"But there's new businesses going up like mad on the new planets and they need people. So the real pioneers, the people with itchy feet, claim overpopulation and draw free government transportation to where the need is, and everybody's happy. But not you and me, Lisa. Understand? We didn't have itchy feet. If you could've found some kind of a husband and I'd been all right with Little Tommy, you and me would never have thought of going off-planet. We'd have stayed where we were and what would have happened?"

He looked at her rhetorically.

"You probably would have ended up being miserable with a male you picked just because he was the first one that came along and sooner or later something would have gone wrong in the Clubs and I'd have been cut up or dragged by the uniforms.

"And instead—look what we fell into," Jory's eyes gleamed with an almost fanatic light, "we were just running away toward the first thing we could find, and we bumped into a chance to wise ourselves up and really get something out of life. It's a miracle, Lisa, I tell you! Me, I'm going to find out what I want to do—what I really want to do—and when I find out I'm going to do it, even if it's hanging upside down from a tree limb and painting the sky green.

"And listen, Lisa—you're going to find out what you want, too. I'll take care of you until you've grown up enough to pick out the man you really want, and then we'll tear up this piece of paper and you can marry him. I'll just claim you're my daughter, or sister, or something and this fake marriage was the only way I could bring you along. It'll be all right, you'll—" he checked himself suddenly, noticing a sullen, set look on her face. "What's wrong now?"

"Nothing."

"Don't tell me 'nothing,'" he said. "I know you. What's wrong?"

"I don't want to marry somebody else."

Jory exploded.

"Are you crazy?" he stormed. "Do you want to tie yourself to me when I don't even know what I'm going to be, yet? Maybe it'll be something where I can't have a wife. What makes you think I'd want you, anyway? Oh, hell, it's just what I say. You're too young to know your own mind yet."

"I am not!" cried Lisa, turning on him with blazing face and clenched fists.

"Well, calm down," said Jory, somewhat taken aback. "I'm not going to shove you off on somebody

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you don't want. But you sure don't seem to appreciate the luck of what's happened to you. I tell you it's a miracle."

But Lisa remained unconvinced.

IN the days that followed, he set himself to convince her; and, in a measure as his own mental image of the future sharpened and took on color, he succeeded.

"You never lived outside of a city in your life, did you?" he asked her once.

She shook her head.

"And neither did I," said Jory triumphantly. "But that's what we're going to do. Why, even back home, people who were willing to go out into the brush could pile up a fortune in no time—fur-farming or something like that—just because nobody else wanted to get their feet wet or do without taxis. There's always things to do if you're willing to go where other people don't like it."

"Was it really hard to live out there?" asked Lisa, fascinated.

"Sure it's hard," answered Jory. "But it's not impossible. You've got no weather dome, so the temperature goes up and down. We'll get rained on, maybe, or even snowed on. What of it? We can use our government settler's bonus to put up buildings and just stay in them when it's too bad out. And listen, Lisa—"

She had been fiddling with her hair. He reached out, took the comb from her hand and pulled her down on the couch opposite him to ensure her full attention.

"—Listen, Lisa, there's some good parts to it, too. When there's no grey weather dome, you can see the blue sky with clouds the way they have it in pictures. There'll be wild trees and things growing right outside our buildings and real breezes blowing through our windows. Hell, we'll even pick a spot of land with our own private creek running through it like they have in the parks and the big estates."

Lisa's face was one big expression of wonder.

"All these people, though—" she breathed. "They'll all be wanting something like that. Maybe there won't be enough to go around."

Jory laughed in happy scorn.

"You sure are a city kid," he said. "Why this planet won't be like the one we left. There probably won't be more than two or three cities on it all together."

Liza gazed at him, half-incredulously.

"How many creeks," she ventured, "are there on a whole world?"

"On a whole world?" Jory gestured expansively. "Millions!"

She sighed.

"Millions!" she echoed.

"Sure," said Jory. "And look—don't get the idea we're just going to live like woolies, either. As soon as we get the place set up and start making money, we'll get a flyer and we can drop into the cities any time we want to. We can stay in the hotels and with the money we'll be making out in the brush, we'll be able to hit the best clubs and see the best

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pictures and everything."

Lisa's eyes misted over suddenly.

"Now what?" snapped Jory.

Lisa tried to stop. She did her best, but two large tears squeezed from under her tightly clamped eyelids and her throat moved convulsively.

"It's just too good to be true," she choked.

"Cut it! Cut it!" snarled Jory. "Every time I talk to you, you end up by flooding us out of here. Can't you do anything but cry?" And he glared angrily across the cabin at her.

But—it was a curiously gentle glare; and Lisa had gotten to know him in the past couple of weeks. So she paid no attention but put her head down on the couch and was just as happily miserable as she wanted to be for the next quarter of an hour.

LANDING. For eighteen hours the passengers had been strapped in their cradles. Now they were being carried down the moving ladder of the ship's main corridor, which, now in landing position, had become a deep, vertical shaft. Jory, with Lisa, stood all ready at the bottom, waiting with the others of their passenger section to disembark.

"First group out!" boomed the loudspeaker. "Baggage delivery, information and equipment available in the Government Station at the edge of the field. First group out!"

They shuffled into a double line; and Jory felt Lisa tremble slightly as she pressed closely against him. Her hand groped blindly into his and clung to it with nervous strength. Jory glanced around embarrassedly at the other passengers; but none of these seemed to notice, being fully concerned with their own luggage and selves. He leaned towards her.

"For God's sake! Relax!" he hissed in her ear. "Remember what I told you. There's nothing to get excited about; we're just coming home."

She nodded, obediently remembering that she had promised to think of this new world as the place where they belonged, instead of the old planet they had left. But the thought which had been so comforting in the familiar confines of their cabin before landing was not so much help now that they were actually standing at the head of the covered gangplank with the damp atmosphere of a strange planet blowing in their faces. She clung to Jory.

The immigrants went docilely, in line, down the steps of the gangplank and out onto the field. Beneath the feet of Lisa and Jory the steel steps rang. Then, abruptly, the noise was gone and they stepped forward on the flat cement surface of the field. Two steps more and they would be under the new skies.

"Here we go," muttered Jory cheerfully. They walked forward through the opening at the end of the covered gangplank, out into open air. . . .

. . . and stopped dead.

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"Go on! Get moving!"

The voices of the other passengers, crowding the gangplank behind them, beat on their ears. But Jory and Lisa stood frozen. Children of weather domes and crowded, dingy streets, they looked at the new world.

No past experience of theirs could match the immensity of it. Vast and far the great blue depths of the sky towered above them, reaching out to the far horizon. The golden sun threw dazzling reflections in their eyes from every shiny object, blinding their gaze, long used to artificial glow. The grass, the trees beyond the glittering white concrete of the field, were lush and rampant with green strength; and a crisp wind whipped their thin city clothes about them, blowing from the roaring empty, open spaces beyond the little town around them.

It was too big, too much, and for a second, Jory stopped, while Lisa turned from it, and shaking, clung to him. Children of narrow ways, they stood in terror before the mighty openness of the world they had come to; and for a second the urge was overwhelming to turn and run, run and hide, back into the close, and stuffy safeness, the metal womb of the ship that was like all places they had known.

For just a moment . . . and then, born on the brisk whip of the chill wind that knifed them, came something that entered into Jory's very soul. With a fierce surge it touched and took him—fed pride in to him, pride of place and being and a great gladness. An exultant joy tore through him and he turned to Lisa, pulling her away from him, turning her about to face the waiting vastness.

"What's the matter with you?" he cried. "This is where we belong. This is our world! This is home!"

He took her hand and pulled her forward. For a second she held back, and then she came. Slowly at first, then faster, while behind them the jammed doorway cleared and the flow of colonists began again. Hand in hand, Jory and Lisa Swenson, they went down the gangplank, into their new world, with shoulders back and heads erect.

Like pioneers.

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STRAYED?
or just plain
GONE?

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THE COLD, COLD GRAVE

By J. P. Caravan

DID you ever hear of a mad scientist who did something for the benefit of humanity? Of course not. Mad scientists do evil, evil, evil all the time. They have to: it's their job.

Yet one of the maddest of mad scientists once stumbled across a discovery which made the whole world thank him and think kind thoughts about him. It was a discovery which helped the lives of two billion people. He did a thing so good that when he found out about it he went into his office and cried for ninety-eight point six days, and his tears took the varnish right off his desk.

This is what happened.

He was calling the roll one day in his classroom, hoping to find one of his students absent so he could fail him for the term. He always failed everybody anyway, but he liked to be mean about it.

"Finnegan," he called.

"Present."

"Bloom."

"Present."

"Earwicker."

"Present."

"John."

"Bresent."

The professor looked up from his roll book.

"You have a cold?"

John nodded miserably.

"Good." And on he went, calling the roll. When it was over he pounded his head against the wall. "Silence!" he cried. "I have a new rule to tell you." The students whipped out notebooks and filing cards. "Starting today any student who comes to class with a cold will automatically fail. Do you understand?"

The students nodded.

"And now I will give you a small exercise in logic. Premise: students with colds fail this course. Statement of fact: John has a cold. Ergo: ergo what?"

"Ergo: John fails," the class shouted.

"Q.E.D." replied the professor. "Quod erat demonstrandum: that which was to be shown. Well done, class." And he happily swallowed two test tubes and a bunsen burner. "John fails." And he laughed, and his laughter was like the sound of turtles being crushed under falling palm trees, a sound nearly impossible

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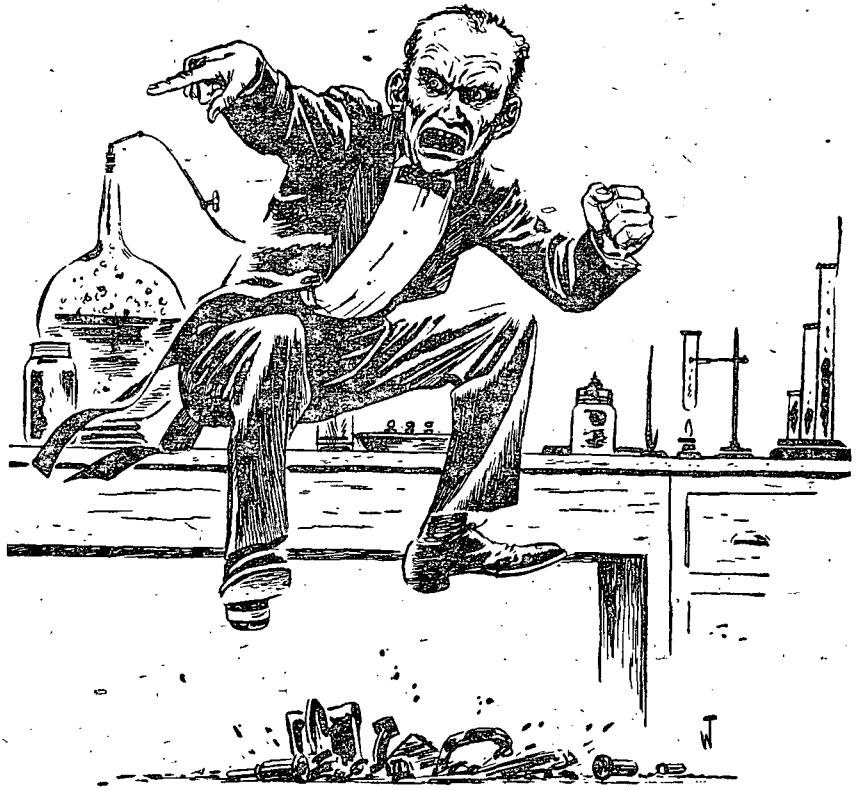
Illustrated by W. E. Terry



to describe, a horrible sound, an unforgettable sound. The class shuddered.

"John fails. John will never be a scientist. Go, John, and starve!" For he hated John.

"Kerchoo!" replied John in the saddest tone imaginable, for he didn't especially want to starve. Starving may be a valuable habit for artists, but scientists need lots of food to cover up the liquor on their breath. Scientists are nearly always drunk, which explains many of the strange things they do. He got up sadly from his stool and walked slowly from the room. He looked hungry already.

"Now," shouted the professor, "that is the end of John," and he laughed again.

This time his laughter was like the sound of ships sinking, and all the students looked down at their notebooks and trembled.

"Out with your microscopes!" cried the old and evil professor.

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"Quickly!" He rushed up and down the aisles of the lab as the students whisked their microscopes from the locker and set them up on the tables. "Faster!" he screeched, whirling wildly around. The tail of his tuxedo (he always wore evening clothes when plotting evil) whisked out and knocked two microscopes to the floor and he leaped on them and ground them to bent brass and broken glass beneath his evil heels. "Clumsy!" he shouted to the two nearest students. "You fail." And he leaped to the front of the room and screamed for silence.

"Silence," he screamed, and the class was silent. You could hear John's unhappy footsteps crossing the campus outside, heading for the edge of the high cliff on which the old and famous university stood, for it was the custom for students to fling themselves over this precipice whenever they failed, which was pretty often.

"Histology," shouted the professor, "today we study histology. A small quiz first! What is histology?" and he pointed his evil forefinger at a terrified coed, who fainted. "Wrong," he cried. "Histology is the study of tissues!" And he failed her. "Somebody bring her to. Here. Pour this on her." He gave one of the students a flask full of colorless liquid. "Don't get any on the floor," he said, but the girl had already recovered and fled from the room.

Then the professor stood quietly in front of the room and smiled at the class. Seeing his smile, the class shifted uneasily, for the professor never smiled unless he was happy, and nothing made him happy except the knowledge that he had some evil plan up his wrinkled sleeve. He smiled such a smile that three frogs, seeing it from the specimen tank, leaped seven feet into the air and fell dead; two windows cracked and shattered, and a pig embryo floating in a jar of alcohol turned bright green and sank to the bottom.

It was not a nice smile.

"Next question," he said. "What are the smallest cells in the human body?"

Trembling, the students slipped underneath the tables, for nobody knew the answer. They looked fearfully at one another, for the professor used to occasionally dissect a student who failed to properly answer. "I'll split you like an infinitive!" he used to horribly yell, but this time he didn't say a word; and when the frightened young scientists peeked over their lab tables, they saw him sitting quietly on the chandelier, grinning down at them. "You don't know?" he asked mildly. "You don't know what the smallest unit of life in the human body is? Sit up in your seats and we will have a small experiment to find out." And he leaped, thump! down to the floor and ran to his desk.

Opening a drawer, he took out a flask filled with a fiercely fluttering fluid. "Look! Look! Here is a chemical I've just invented. One drop will be enough to go right to the smallest living part of the body and destroy it utterly. Better yet! Whatever type of cell that may be, my little invention will destroy every other cell of its

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type. Yes! Utterly! Utterly! What will happen then?"

"Death," said one of the students, "Death quickly or death slowly, but death and the cold, cold, grave; for if all the cells of one type in the body are destroyed there can be no regeneration and no healing. Aristotle says . . ."

"Silence!" shouted the old and evil professor, "You talk too much. You fail." He waved the flask. "But you are correct. Whatever it may be, that smallest unit of life in the body, it will be destroyed and all similar cells will be destroyed. Suppose it is a nerve: all nerve cells will go. Ha! Suppose it is connective tissue. Ha! A muscle cell, perhaps. How foolish you would look without muscles! And I have discovered it." He looked at them. "I want a volunteer," he said softly. "Who'll try it first?" And he began to prowl quietly up and down the laboratory. "Speak!" he shrieked. "First one to speak gets to drink it all. I have more."

Suddenly the door opened and John poked his head in. "Good afternoon," he said. "I'm back. I went to fling myself over the cliff but there was a line ahead of me so I came back to hear the rest of the lecture."

"Hello, John," said the old and evil professor. "Come in, my son. Take your old seat. Sit down. I'm glad to see you back. I'm sorry I failed you, John, sorry, sorry, sorry. But nothing can be done about it now." And he smiled horribly. "Wait," he said. "Perhaps you would like to help in a small experiment. Perhaps I can pass you after all."

John looked surprised: nobody ever passed the evil old scholar's courses. "Fine," he said.

"Drink this."

John drank it. "I think a touch of nutmeg might have helped the flavor," he said. "What was it?"

"Nothing, John," said the old and evil professor. "How is your cold?"

"Kerchoo!" said John. "Getting worse."

"Well, don't worry about it. According to my figures you'll be dead in three hours and seven minutes, so you won't have to be bothered with handkerchiefs for a long time to come."

"Kerchoo!"

"The liquid you just drank was a poison which is already starting to dissolve the smallest units of life in your body. Farewell."

"Kerchoo!" said John. "May I have the rest of the period off? I'd like to say goodbye to my wife."

And now the evil old professor began to laugh. "Yeek, yeek," he laughed. "Yeek, yeek. Yes, John. Go and say goodbye, but return in three hours and six minutes so we may watch you perish."

So away went John, and the poison worked inside him.

And in three hours and six minutes he came back into the classroom.

"Hello, John," said the professor. "How are you?"

"I feel fine," said John.

"Good. Would you mind climbing up on the demonstration table? You have almost fifty seconds to live."

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John leaped up on the table. "I never felt better," he said.

"Forty seconds."

"Ha, ha," said John.

"Thirty seconds. You might be interested in the formula." And the evil old scientist went like a huge spider to the blackboard and filled it with figures and peculiar signs. "It is one of my best inventions. You have twenty seconds to live."

"Very interesting," said John, memorizing the formula.

"Ten seconds."

"Goodbye."

"Five seconds. Goodbye."

"I've never been poisoned before."

"Time's up." And the professor turned happily to the class and crunched pieces of chalk between his happy fangs. "There you have it. John is dead. I expect a full report in your laboratory manuals. Green ink for the numbers, pink pencil for the diagrams." And he leaped high into the air, whirling for joy and kicking cheerfully at the students. "John is dead."

"No I'm not," John said.

"Nonsense!" screamed the evil old professor. "Science proves you dead."

"But I'm not."

"Subjective error! Hallucination! Unscientific sentimentality! The poison couldn't fail."

"Oh, the poison worked fine," John said. "But I'm not dead."

"Why not? Why not?" he howled, and his thin hair streamed up and shot out sparks.

"It's this way," John said, dodging. "That poison of yours was designed to kill everything of the type of the smallest unit of life in my body. If the smallest cell was a muscle cell every muscle in my body—striated or smooth — would be destroyed. Right?"

"Right!"

"But you assumed the smallest living unit in my body was a cell."

"Wasn't it? Wasn't it?"

John smiled happily. "I had a cold," he said. "I was full of viruses, and the filterable virus is so small it can't even be seen with an ordinary microscope." He climbed down from the demonstration table. "Some of them are only a single protein molecule. Your poison killed them. You've discovered a cure for the common cold."

He held out his hand to congratulate the old and evil professor, but with a wail of rage he knocked John to the floor and rushed like a hateful crab into his office, where he remained for ninety-eight point six days, weeping, while the great news of his cold cure spread out over the earth and two billion people were thankful. He remained in his office thinking and plotting, and planning and persevering, but he never became unhappy enough to commit suicide, which was a pity.

And John went home to his wife and never had a cold again, but he developed an ingrown toenail from being stamped on by the evil old professor, and when the professor heard this he became happy enough to sing, and his singing made cracks in the science building's walls.

ACCESS TO COURSE MATERIALS

Lost Continents

By L. Sprague de Camp

No. 7

The CREEPING CONTINENTS*

The years will come, in the eld of the world
When Ocean will loosen his grip on things,
When the land will extend itself afar,
And Tethys new continents will disclose
Nor will Thulë then be the end of the earth.

Seneca

YOU cannot, then, prove whether or not sunken continents ever existed by comparing the cultures of different peoples, because to do so you would have to make the same assumptions as those of the diffusionists about culture-complexes, the scarcity of invention, and so on. In the first place, as I have tried to show you, these assumptions are wrong, and in the second they give contradictory results: for instance, Atlantis versus Egypt versus Brazil as the source of all civilization.

On the other hand neither can you disprove sunken continents by the evidence of cultures alone. It is safe to say that no continent with a high civilization, like that of Egypt in her days of glory, existed in the Atlantic 10,000 years ago, because it would have left relics of that age on the neighboring shores of North America, Europe, and Africa, which it did not. Still, the Atlanteans might, as Spence asserts, have been a stone-age people with a few modest accomplishments in the way of culture. The evidence of human remains does not flatly rule out Atlantis according to Spence's time-table. That is not to say that archeology *favors* the existence of these continents; it just doesn't settle the matter one way or the other.

But *do* continents rise and fall the way Plato said they did? Or, if they don't, is there any other way land can be flooded on a vast scale so as to give the impression of a world-wide Deluge? For the answers to these questions we must go to geology, a

*Slightly condensed from *Lost Continents: The Atlantis Theme in History, Science, & Literature,* by L. Sprague de Camp; Phila.: Prime Press, 1952; copr. 1952 by L. Sprague de Camp.

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science that produces rugged characters and quaint technical terms that I will try to keep to a minimum.

Long ago men guessed that some present-day lands had once been under water and *vice versa*. Many creation-myths start off with a watery world which the gods eventually modify in order to provide dry land for men to live on—see *Genesis*, or the American Indian myth of the Muskrat who brought mud up to the surface to make the first continent. And several perspicacious Classical writers noticed the fossils of sea-animals on land and drew the inevitable conclusion that this land had once been submerged.

It took a long, long time, however, before men had accumulated enough knowledge to be able even to guess with a fair chance of success what land had been submerged when, and they don't yet know for sure *why* such submergences and elevations take place.

During the early nineteenth century the catastrophe hypothesis, started by Baron Cuvier, had a run of popularity. This was that every so often a great catastrophe destroyed all life on earth (as it does in the Aztec creation-myth) and that each time God had started over with a new creation. This theory neatly reconciled the Biblical creation-myth with the growing knowledge of the fossils of extinct life-forms.

But then with increasing knowledge of geology and paleontology it became obvious that the gaps in the record that Cuvier supposed to represent catastrophes were simply gaps in men's knowledge, and that life had evolved continuously ever since it started without any such interruptions. The catastrophe-theory, however, continues to lead a ghostly existence in the form of the eccentric speculations of people like Hörbiger and Velikovsky about planetary collisions.

Now, we can actually learn, not the whole truth, but a considerable part of the truth about former submergences by studying the rocks and the fossils embedded in them. If, for instance, a given fossil-bearing deposit of Jurassic age contains the fossils of land-animals only, we know that during that period that area was dry land. But even if the record of that area is now not available, having been eroded away or buried beneath later deposits or sunk beneath the sea, we can still often infer what it was doing in the Jurassic Period by indirect means. For instance, if two areas, now separated by water, were at that time inhabited by the same species of large land animal (birds, which fly, and small creatures that might be wafted over on driftwood or be carried by birds don't count) we can be sure that those areas were then connected, because no normal land animal will set out to swim across a strait of any appreciable width.

In this way it has been discovered that the Americas were separated throughout the first half of the Age

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of Mammals, and then were joined by the Isthmus of Panama. That is why we have jaguars and deer in Brazil (whither they must have migrated from North America where they evolved) and armadillos, a form of South American origin, in Texas.

Several decades ago many scientists who lacked the mass of evidence we have today, but who should have known better, made reckless guesses about former land bridges across the oceans, and the Atlantists promptly picked up these guesses as "scientific proof" of their lost continents. Gregory in England, for instance, filled the Pacific Ocean with a regular network of supposed continents and land-bridges. They used such arguments as insisting that titanotheres (rhinoceros-like beasts that throve in North America and Asia during the early Cenozoic Era) must have crossed a mid-Pacific bridge because the obvious Siberia-Alaska bridge would have been too cold. But in the first place we don't know how cold the Bering Strait isthmus really was then (the climate may have been mild) and in the second we don't know how much cold the titanotheres could stand (they may have been hairy like the mammoth).

Another builder of land-bridges, the English naturalist H. E. Forrest, tried to persuade his readers that there had once been a land-bridge across the North Atlantic Ocean, taking in Iceland. While such a bridge probably did exist once upon a time, Forrest wanted his bridge in the Pleistocene Period, the last age before the present Recent Period, late enough to furnish a basis for Plato's story. And that, alas, will not work.

Forrest based his arguments largely on the distribution of plants, creeping things, and fresh-water fish. These are slowly-evolving organisms, some of which may have been about where they are and what they are since the Mesozoic Era sixty or more million years ago, and they therefore prove nothing about the shape of the land in the Pleistocene Period. For the Pleistocene, on the other hand, the distribution of large land-animals shows a bridge from Siberia to Alaska via Bering Strait but none from Labrador to Europe.

Recently Simpson of the American Museum of Natural History has worked out a time-table of the opening and closing of the Bering bridge. This he did by comparing the percentages of species, genera, and families of animals found living at the same time in different parts of the earth during various past periods. Simpson concluded that the Bering bridge was open to land traffic during most of the Cenozoic Era, with an interruption in the Middle Eocene Period, another in the middle and late Oligocene, and of course still another since the last retreat of the glaciers in the Pleistocene, which has lasted to our own time. There may have been shorter interruptions as well, but these are hard to detect.

Simpson and many of his colleagues agree that, according to fossil

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evidence, the main land masses have stayed in very much the same places where they are now during the Cenozoic Era, even though shallow seas have overflowed the continents and land-bridges have opened and closed. Therefore during the last 50,000,000 years at least the connections between the continents have been those that you see on the map today: Bering Strait, Panama, Suez, and some time earlier a bridge from Australia to the Malay Peninsula through New Guinea. During this time, say these scientists, there have been no direct connections among Africa, South America, and Australia, which have exchanged animals via the northern continents only.

The distribution of animals is fatal to many of the Atlantists' sunken lands. For example Lewis Spence suggested two Pacific continents, one stretching east and west from the Hawaiian Islands to the Malay Archipelago, taking in New Guinea, Celebes, and Borneo; the other reaching north from New Zealand. The first continent unfortunately lies right across one of the sharpest animal boundaries on earth: the "Wallace line" through Indonesia that divides the Oriental from the Australian region. As one goes from Borneo to New Guinea one passes from the Indo-Malayan world of monkeys, cats, buffaloes, and elephants to the vastly different world of kangaroos and echidnas. In the latter region the mammals are all (with a few easily-explained exceptions) egg-laying monotremes or pouched marsupials; in the former they all belong to the higher "placental" type to which we ourselves belong as well. The only placental mammals to reach New Guinea are dogs and pigs brought in by men, small rodents that could have floated over on the driftwood ferry, and bats that flew in. These facts show that the water-barrier of the Celebese, Banda, and Timor Seas has been where it is for a long time, probably ever since the Mesozoic Era, and Spence's continent, which would have let the beasts of these two zones mingle freely, is out of the question.

Back before the Cenozoic Era, however, the evidence regarding land-bridges does not point so clearly to any one conclusion. Furthermore some evidence does strongly suggest direct connections among the southern continents in the Mesozoic Era and earlier. These connections may have been via Antarctica (an idea favored by the late great Henry Fairfield Osborn) or by way of land-bridges across the South Atlantic and Indian Oceans. Which brings us to the story of the Gondwanaland theory.

BEFORE going into that subject, however, we had better take time to consider what a continent is. The present picture of the earth that geologists have worked out from the action of the tides, the behavior of earthquake shocks, the things meteors are made of, and other indica-

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tions, may not be entirely right, but it is surely more correct than the pictures that went before it and will do until a better one comes along.

According to this picture the earth consists first of a skin of crystalline rock on which we stand and out of which we build banks, bridges, and other useful structures. As we go down the rock gets hotter and hotter and the pressure gets greater and greater until, at a depth of fifty to a hundred miles, the rock is no longer crystalline but is in a state like white-hot glass. It is not exactly molten, though the temperature is high enough to melt it, because the pressure of the overlying rock is so enormous that the stuff literally cannot melt. Instead it is a sticky, stiff near-solid something like cold pitch—as rigid as steel against sudden stresses, but yielding to long-continued ones. After all anything will become plastic if you put it under enough pressure, and at such depths you have all the pressure you need. Then further down, 2000 miles or more, the magma (as this glassy substance is called) is thought to change gradually to a solid mass of nickel-iron comprising the earth's core, a sphere 3500 to 4000 miles in diameter.

Now, the crystalline crust at the surface, which most concerns us, is made up of, mainly, two kinds of rocks: dense rocks like basalt and less dense rocks like granite. The former, called "sima" (rhymes with "I'm a") consist mostly of salts of silicon and magnesium, while the latter, the "sial" rocks (rhymes with "Hi, Al!") are made of salts of silicon and aluminum. And whereas the rocks under the ocean deeps are mostly sima, the continents are built mainly of sial. In fact one might almost consider the continents as pancake-like patches of sial "floating" in the crust of sima like pieces of ice-floe floating in the ocean.

Geologists guess these patches to be anywhere from ten to sixty miles thick, but in any case they extend down into the sima farther than they stick up out of it, just as ice does in water. Granitic rocks are so characteristic of continents that they are sometimes called "continental-type" rocks.

So close is this relationship that geologists, when they find sial rocks under water or on an island, suspect that here may be the place of a former large land area. On the other hand they think that islands made entirely of volcanic sima, like the Samoan group, must have grown up from the sea-bottom by the outpourings of volcanoes. They do not therefore believe such islands to be the remains of any continent, and do not take the Central Pacific continents of Spence and other Atlantists seriously, since the islands of Polynesia are all of this volcanic-sima type.

To tell where continents might possibly have existed, we have to study the ocean floor. The ocean bottom presents the following forms: shallow continental shelves which are merely the submerged edges of the conti-

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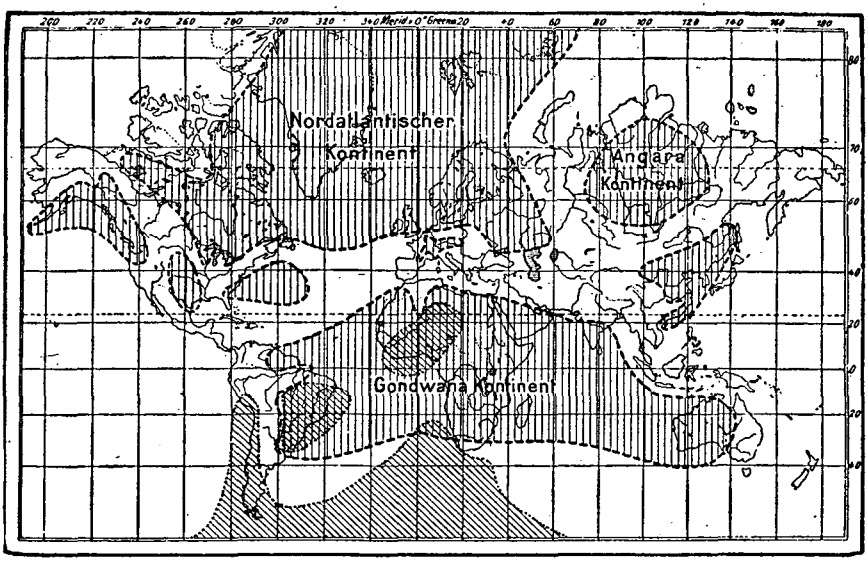

SUESS'S IDEA OF THE WORLD IN THE LATE PALEOZOIC ERA, according to Dacqué's Paläogeographie.

nents; vast submarine plains, miles deep and monotonously smooth; and areas of moderate depth with a broken, mountainous relief as if a mountain-range had sunk till only the tops showed.

By studying the speed of earthquake vibrations, geologists can get a good idea of what the earth's crust under the oceans is made of, since these vibrations travel at speeds that vary by as much as 26%—too much for experimental error. They have learned in this way that the great deeps are plain sima, while the continental shelves and the rough, moderately deep places are partly sial. The greatest areas of deep sima are in the Central Pacific, the southern Indian, and the Arctic Oceans. These are therefore the "permanent" oceans, where no continents are to be expected, past, present, or future.

So much for Mu, Pan, and the Theosophical Lemuria, which Atlantists have located in the Central Pacific—the unlikeliest place on earth for a continent. The great Pacific sima depression is in fact probably one of the most stable and long-lived features of the earth's surface, going back in much its present form at least half a billion years. One of the illustrations shows a map of the Pacific with the "andesite line," east of which not one pebble of continental-type rock has ever been found.

Men have naturally wondered why

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most of the earth's sial should be concentrated in one hemisphere centering in Europe, leaving the opposite hemisphere nearly all water, but nobody has yet given a final answer to the question. In the late nineteenth century Osmond Fisher and George Darwin suggested that the moon was an agglomeration of the missing part of the sial crust, thrown off by centrifugal force when the earth was hotter and more liquid and spinning faster. However, a few calculations showed that the moon's mass is about 37 times too great for the purpose, and moreover it has a specific gravity of 3.7 compared to 2.5 for the earth's granitic crust.

The great submarine mountain ranges (where, you remember, we might reasonably suspect a lost continent) lie in the southwest Pacific (including the Fijis and New Zealand) and in the northwest Indian Ocean. The Atlantic Ocean appears to be sima with little patches of sial here and there. Also, "continental" rocks occur in islands where the sea-bottom is thought to be made partly of sial: among others, the Fijis, the Seychelles in the Indian Ocean, and the Canaries and Madeiras in the Atlantic, the last probably representing a peninsula that once stuck out west and northwest from the Moroccan coast.

Some have even claimed that continental rocks occur in small amounts in the volcanic Azores, right where orthodox Atlantists put Atlantis. While most geologists are cautious about the geological history of the Azores, for lack of information, some concede that they might just possibly be the remains of a larger island, perhaps the size of Spain. However, those who think so are sure the island had sunk by the end of the Miocene Period, when our ancestors were still running naked through the woods and living precariously on berries and beetle-grubs.

ON the question of sunken continents, modern geologists are divided into three schools: the stable-continent school, the transoceanic-continent school, and the continental-drift school. The stable-continent geologists like Matthew believe in no sunken continents; the most that happened, they say, was a series of slight movements of the existing lands to open and close land-bridges. On the other hand, the transoceanic-continent school believes big former continents like Gondwanaland possible, while the small continental-drift school holds that the continents are stable in size and shape but that they drift about the surface of the earth.

Gondwanaland and the transoceanic-continent school in general began with the Viennese geologist Melchior Neumayr (whom you may remember from the third chapter as the author of the world's first paleogeographic world map) and with the Lemurian speculations of Blanford, Sclater, and Haeckel.

Neumayr was followed by another Austrian, Eduard Suess, who in his

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day was the Grand Old Man of European geology, at which he worked actively for more than half a century. In the 1880's Suess expanded upon the ideas of those who had gone before him in an immense five-volume treatise on the geology of the world, *Das Antlitz der Erde (The Face of the Earth)*. Suess thought that in the Paleozoic Era, the age of fishes and invertebrates and coal, there was one large continent in the Southern Hemisphere in addition to those in the North. This he named "Gondwána-land" after the tract in India which Blanford had described. (Do you recall the Gonds and their unattractive tribal customs?)

At the same time there were, according to Suess, two continents in the northern hemisphere. One, North America with a peninsula reaching over to Europe by way of Greenland and Iceland, he called "Atlantis"; the other, consisting of eastern Asia, he named "Angara-land" after a Siberian river, the Angara (pronounced "ahng-gah-*rah*"). The shallow sea separating Gondwána-land from Angara-land he baptized "Tethys" (pronounced "*teeth*-iss") after a Titaness from Greek myth, the wife of our old friend the sea-god Okeanos. Suess thought that while Gondwana-land broke up during the Mesozoic Era, the Atlantean land-bridge lasted until well into the Cenozoic—not late enough to be Plato's Atlantis, perhaps, but late enough to have affected the migrations of mammals in the Cenozoic Era.

One of the pictures shows Suess's idea of the world during the late Paleozoic Era, according to a more recent German geologist, Edgar Dacqué. Dacqué, a strong Gondwana-lander, also believed in an eccentric theory of human evolution, the "Doctrine of Types." He supposed the human stock to have existed as a separate stem of evolution clear back to the Paleozoic Era, or as a sort of central trunk of the evolutionary tree, all other animals representing degenerate side-branches.

During the Jurassic and Cretaceous Periods when dinosaurs ruled the world, according to the Neumayr-Suess school, Gondwanaland gradually broke up by the sinking of its various parts. Australia and New Zealand separated first, which fact accounts for their lack of placental mammals, since placental mammals had not been invented at the time of the separation. South America went next, leaving it with the very curious assortment of mammals that lived there until it was re-connected with North America: herbivorous placental mammals like the ground-sloths, and carnivorous marsupials like those found today in the Australian region, for instance the thylacine ("Tasmanian wolf") and the dasyure ("native cat").

The last part to sink was the land-bridge connecting South Africa with India, the geologists' Lemuria, leaving Madagascar and the great Seychelles Reefs with their islands as a fossil of its former existence. Some of the curious animals found in out-of-the-way spots in the Southern Hemi-

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sphere, such as the platypus, and the giant tortoises of the Galápagos and Aldabra Islands, are thought to be in a sense survivors of the life of Gondwanaland before its breakup. Opinions differ about the cause of this fragmentation: some say parts of the continent sank into the substratum and dissolved, while some continental-drifters think Gondwanaland came apart at the seams in the course of its drifting and left pieces like Australia behind.

Many American geologists take a position between the stable-continent and transoceanic-continent schools. On one hand they think there may be something to the evidence for direct migrations between the southern continents during and before the Age of Reptiles; on the other, they object to a vast Gondwanaland of Suess's kind because it would displace enough water to submerge the other continents completely, which we know was not the case. The question of how much water there used to be on the earth, by the way, is another unsettled one. Some think the total water in the oceans has increased in the last billion years or so, because every time there is a volcanic eruption some water that had been dissolved in the magma of the substratum (called by the odd name of "juvenile water") escapes in the form of steam. On the other hand the earth is probably losing water-molecules from the upper atmosphere into outer space, and which process is working the faster is anybody's guess.

American geologists therefore tend to picture the connections between the southern continents as narrow necks of land like the Isthmus of Panama rather than as broad ocean-filling continental links, as you can see from Schuchert's map.

The American geologist Schuchert outlines paleogeographical history as follows: Not counting Antarctica, there are seven main land-masses—North America, Northern Europe, Eastern Asia, South America, Africa, India, and Australia. (The geologists give these places various names in former times: North America is "Laurentia" or "Eria" and so on.) In Paleozoic times the land area of the world was greater than now because there was less sea-water and the sial continental masses were bigger. Connections among these masses tended to run east and west instead of north and south as they now do. You might imagine the map of the world as a microscope-slide on which there are seven amebas, ever swelling and shrinking and reaching out pseudopods towards each other. Once they stretched their tentacles east and west, where now they reach north and south.

During times of mountain-building, when the land stood high above the sea, the northern masses were joined in a single continent called "Holarctica," which encircled the North Pole, and the southern masses were joined in a single Gondwanaland. However, these world-wide mergers of continents took place only at long intervals. The rest of the time the continents were lower, and shal-

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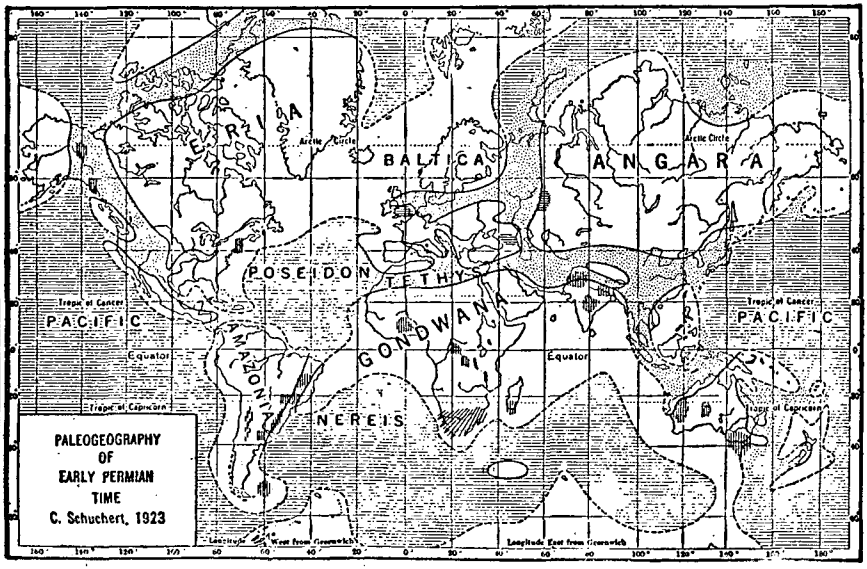
low seas washed over much of their surface, sometimes reducing North America, for instance, to a mere cluster of islands.

The earth, you see, alternates between states of mountain-making and resting. During the times of mountain-building ("orogeny," geologists call it, rhyming with "progeny") the continents are high, climates are cold and dry, and land-bridges are open to pedestrians, whereas in the resting periods the continents are low, flat, and small, land-bridges are covered with water, and free flow of the ocean currents gives the world a mild, moist climate. These up-and-down movements of the continents do not take place smoothly, but with smaller up-and-down movements. When the continents sink, the inland seas ("epeiric seas") come and go several times, each time advancing a little farther and retreating a little less, until after tens of millions of years the land reaches its lowest point.

During these periods of sinking, great rifts open in the skin of the earth, through which lava wells out to spread over tens of thousands of square miles. You can imagine the scene: a great pancake of doughy lava hundreds of miles across, silvery-gray in the sun and glowing dull red



MAP OF THE WORLD IN THE PERMIAN PERIOD, according to the American geologist Schuchert. Dotted areas are epeiric seas (Reproduced by permission from Outlines of Historical Geology, *2d ed., by C. Schuchert, publ. by John Wiley & Sons, Inc., 1931.)*

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at night where the red-hot interior shines through cracks in the cool crust, spreading slowly foot by foot over the level land, while trees in its path turn brown and go up in a puff of flame and the herds flee. The greatest of these flows are found, safely solidified, in India, northwestern Europe, the western United States, southern South America, and Australia. Similar flows take place on the ocean bottom, quietly, because more than a mile and a quarter down the water is under such pressure that it cannot boil even in contact with white-hot lava. Such flows occurred in the Mediterranean in the 1880's and 90's, for instance, without causing any disturbance at the surface of the sea. And the coolness of the seawater soon freezes these submarine lava-flows.

When the land has sunk as far as it will go, the downward motion is reversed. Parts of the continents fold up as if pushed together from the edges, and the continents rise—again, not smoothly, but by an up-and-down movement, faster than the descent. The epeiric seas drain away and dry up, and erosion cuts the high parts of the lands into rugged mountains like the Alps. Volcanoes erupt. The climate gets cooler and dryer, with sharper changes from place to place and from season to season. In an extreme case an ice-age may ensue. In time the uplift stops and the cycle begins over.

Most geologists think we ourselves live at the end of a period of orogeny, and can look forward to 25 or 50 million years of sinking, shrinking, and warming of the lands we live on. It's a sobering thought that the human race may some day have to get along on two-thirds or even half its present land, though much of the remaining land will have a languid, even climate like that of Hawaii.

Although many spasms of orogeny have shaken the earth, we need remember only the biggest since the Pennsylvanian Period of coal and amphibians about 200,000,000 years ago. The end of the next period, the Permian, saw a great orogeny called the "Appalachian Revolution" from the mountains built at that time. At this time Gondwanaland, if it existed, reached its greatest size, and glaciers covered much of the Southern Hemisphere.

Next came the Mesozoic Era, with three smaller orogenies and a big one, the Laramide Revolution, at the end. This last upheaval built the Rockies and ended the Age of Reptiles. The Gondwanalanders think that during the Age of Reptiles the east-west links between the southern continents disappeared for good and were replaced by the present north-south links, so that a map of the world during the Laramide Revolution would look fairly modern.

The Laramide Revolution ended about 60,000,000 years ago, ushering in the Age of Mammals or Cenozoic Era. This in turn was closed by a great orogeny, the Cascadian Revolution, which built the Himalayas and brought on the Pleistocene Ice Age. The Pleistocene Period saw four ad-

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vances of the ice (we live at the end —we hope—of the fourth), the rise of man, and the disappearance of giant mammals like elephants and rhinoceroses almost everywhere except in India and Africa.

GEOLOGISTS agree pretty well as to when and how cycles of mountain-building and subsidence happen. But as to what makes them occur they do not agree at all, nor yet as to how and whether continents come to "founder" and disappear. The natural buoyancy of continental rock in the sima crust makes it hard to see how such a vast floating mass *could* disappear.

The English geologist Joly, for example, has worked out a theory of orogenic cycles based upon radioactivity. All rocks contain radioactive elements, and while the amount may be too small to detect in a given sample, it can warm the rock up a lot if its heat accumulates for millions of years without being able to escape. Joly thinks that this heat melts the substratum from a stiff hot glass to a true liquid, expanding it and making the earth's diameter about forty miles greater than it is now. Since the basaltic magma of the substratum swells, its density becomes about 6% less than it was, so that the granitic continents cannot float so high in it as they did. As they sink, the epeiric seas will naturally cover parts of them. Since this expansion of the earth stretches the crust, it tears open, allowing lava to flow out on to the surface.

Then in time currents in the substratum allow the magma to cool and solidify again, whereupon the whole process is reversed and a time of orogeny occurs. Very neat and plausible, though I think the scheme has several flaws. Considering the pressures in the substratum, it is not likely that it could be truly liquefied except by a temperature so high as to melt the whole crust, and there are technical objections to some other features of Joly's theory as well.

Willis, another geologist, thinks that the continents have been connected by "isthmian links": mountain-ranges thrown up from the ocean bottom by the same squeezing forces that build mountains on land. Being made of dense sima rocks to begin with, these ranges have no natural tendency to "float" and hence in the course of millions of years sink back to their former level of their own weight.

Barrell on the other hand believes that these isthmuses were originally of light sial-type rocks like the rest of the continents. But magma, you know, is always melting and dissolving its way into the surface rocks to form "dykes" and "intrusions" of basalt. If enough of this heavy stuff invaded the isthmuses, they would be made dense enough to sink of their own increased weight, which is what Barrell thinks happened.

Since somebody can bring good, solid objections on one ground or another against all these hypotheses, however, we had better agree that nobody really knows why continents or

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parts of continents sink and let it go at that. No doubt a sound explanation, perhaps combining features of older theories, will be forthcoming some day.

That leaves the continental-drift hypothesis of Alfred Wegener, a professor of geophysics and meteorology at the University of Graz, Austria: a theory developed independently in the United States by Frank B. Taylor (another case of independent invention!)

Wegener, who perished exploring the Greenland ice-cap in 1930, reasoned as follows: if the sial continents float about in the denser sima crust like so many cakes of ice in a river, it is logical to suppose that over a period of geological eras they might drift hither and thither like ice-cakes. And in glowering at the globe he thought he saw how, with a little stretching and ingenuity, all the existing continents could be fitted together like a jigsaw puzzle to make one vast super-continent. So he inferred that this super-continent, which he named "Pangaea" ("All-Earth") must actually have existed back in the Paleozoic Era.

According to Wegener's theory, then, Pangaea (which must have been a land of immense deserts, like Suess's Gondwanaland, because the winds would sweep over it for thousands of miles after they had lost their moisture without having a chance to pick up any more) began to break up in the Mesozoic Era—the Age of Dinosaurs. Its parts came adrift one by one and drifted apart, until finally in the Pleistocene Europe came loose from North America. On this assumption we need not worry about land-bridges, since all the continents were once in actual contact; and Atlantis would merely be North America before it drifted away over the horizon from Europe.

The Wegener theory has several points in its favor. For instance the mountain chains along the western margins of the American continents look as if these continents had been drifting westward and had been crumpled at their leading edges. Surveyors once issued a report (not confirmed by later observations, though) that Greenland was still drifting westward at sixty feet a year.

The Wegenerites have suggested various mechanisms to explain the drift. Wegener himself thought that Pangaea was pulled apart by a combination of centrifugal and tidal forces; Daly asserted that the earth was slightly egg-shaped with Pangaea at the bulge, so that the continents were simply coasting downhill; others believe that slow convection currents in the substratum carry the continents about, like bits of scum on the surface of an overheated pot of cocoa.

However, the theory also has some probably fatal flaws. Paleontologists like Simpson object that the distribution of animals proves that Europe and North America were separated at least as early as the Mesozoic Era; a Pleistocene connection between the two, they say, is preposterous. Chaney points out that continental drift

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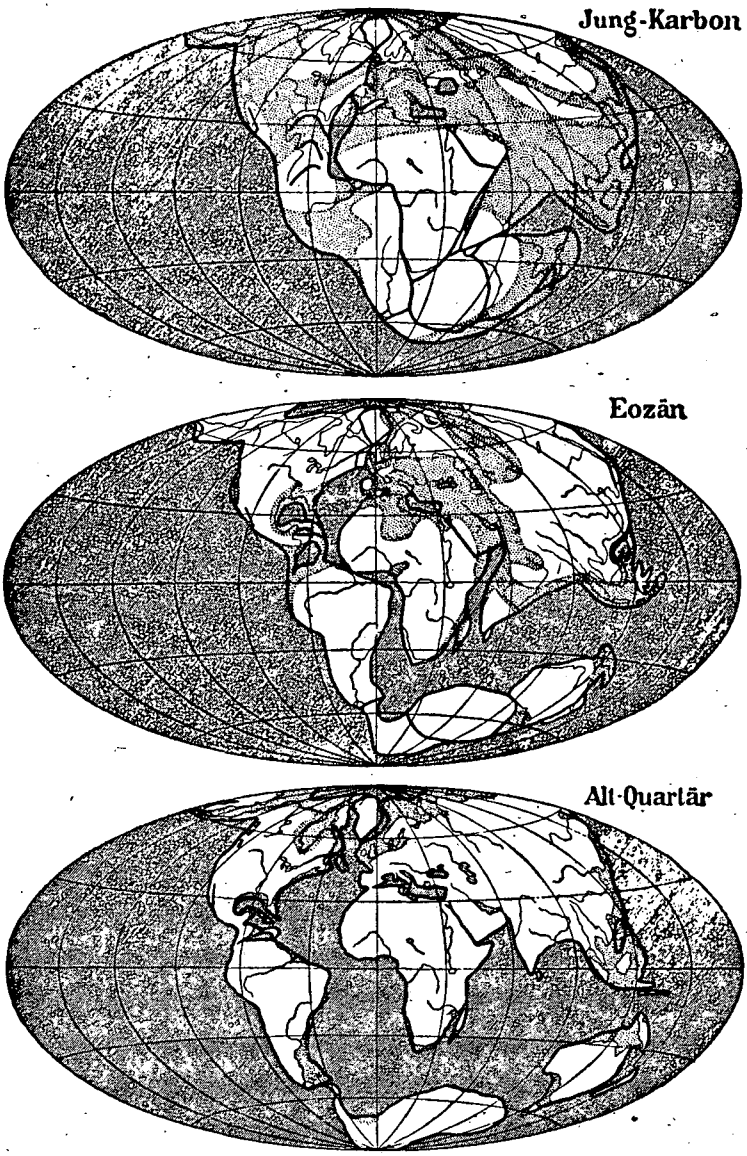

THE THEORY OF CONTINENTAL DRIFT—the world (top to bottom) in the Pennsylvanian, Eocene, and Pleistocene Periods, according to Wegener's theories.

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implies a much greater shift in climatic zones during the Cenozoic Era than actually took place. Others object that Wegener's jig-saw puzzle does not fit together nearly so well if we take the boundaries of the continents to be the edges of the continental shelves, as we should, rather than the shorelines. They also note that the sima of the ocean floor is stronger and stiffer than the sial rocks that go to make up the continents, and ask: how could these slabs of weak rock plow their way through the stiffer stuff in which they rest? Finally the geophysicist Lambert calculated that the forces Wegener relied upon to tow his continents about the earth were only one-millionth the size required by the job.

Schuchert thinks that the continents may indeed have drifted, but only a few hundred miles throughout geological time, and not necessarily always in the same direction. Altogether, perhaps we had better put the Wegener theory on the shelf marked "very doubtful" and leave it there for the time being.

Besides the Wegener hypothesis there have been a lot of other marginal theories having to do with geology, which for one reason or another failed to convince most geologists. Of these, perhaps the one most interesting to us is that which the French geologist Pierre Termier proposed in 1912. It had come to Termier's attention that in 1898 a cable-ship, fishing for the broken ends of a telegraphic cable 500 miles north of the Azores, brought up splinters of tachylyte in its grappling-irons from a depth of two miles. Tachylyte is a natural non-crystalline volcanic glass that ordinarily forms when lava cools in the open.

Reading a geological report on the eruption of Mount Pelée in the West Indies, Termier noticed that tachylyte had formed there from lava that was exposed to air, but that lava that solidified under a blanket of previously hardened lava formed crystals. He then jumped to the conclusion that tachylyte can form only under the slight pressure of the atmosphere, and that therefore the cable-ship's tachylyte must have come into being in air. The answer, of course, was the sinking of Atlantis; Termier guessed that between 40,000 and 200,000 square miles had plunged 10,000 feet beneath the sea.

Schuchert soon pointed out that Termier's chemistry was at fault. Neither pressure nor the presence of air is the critical factor in the hardening of lava; instead, it is the rate of cooling, and lava that freezes under a blanket of previously hardened lava forms crystals because it cools more slowly. Both laboratory experiments and observations of underwater lava flows indicate that tachylyte forms quite as readily under water as elsewhere. Nevertheless the Atlantists picked up Termier's argument and have continued to repeat the tale of Termier's tachylyte ever since as if his theory had never been refuted, just as they have the story of the Japanese Indians of Mexico.

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So much for Gondwanaland, Pangaea, and other geological lost continents. All of them are very much a matter of educated guesswork; European geologists seem to take them more seriously on the whole than their American colleagues. In this field one finds such wide differences of opinion among the people best qualified to judge that the layman might just as well write off the geological lost-continent question as unsettled.

However, most geologists agree very well on some points: That these former lands, if they existed, broke up long before civilization arose, and that they sank little by little over millions of years. While there have been great floodings of the land, there is no reason to think that a whole continent can be submerged at once. The material underneath has to go somewhere, which takes time; and great gas-filled chambers under the earth, like those of Churchward, would violate the laws of physics. A few miles down, long before you come to the substratum, you enter the zone of flow, where the pressure of the overlying crust makes the rock slightly plastic. Below that depth any cavity would soon fill up.

Thus, while a volcanic eruption may make drastic changes over a few square miles, alterations on a continental scale take millions of years. Therefore geology offers no support to Plato's stories, first, because their timing is all wrong by millions of years, and second because when land does sink, it goes down much more slowly than Plato thought it did.

BUT if geology doesn't actually confirm Plato's story, does it really disprove it? What do we know for sure about the rate of the rise and sinking of lands, the flooding of large areas, and the effects of earthquakes? And do these facts offer any clues as to where Plato got his ideas?

As it happens, we do know quite a bit about the drowning of lands, both temporarily and permanently. The four main causes of inundations are the flooding of river-valleys, the invasion by the sea of an area below sea-level, the tsunami or earthquake wave, and permanent sinking under water as a result of movements of the earth's crust. Let us consider them in order.

The flooding of river-valleys. Such floods, like those of the Mississippi, are disastrous enough and are probably the source of flood-legends, since civilizations usually arise in river-valleys where such floods are likely to take place. Still, the area affected by such floods is limited and the effect usually temporary, though landslides sometimes dam rivers, making small permanent lakes. Nevertheless, such floods sometimes do enough damage to make their ignorant victims think that the whole world has been deluged. Chinese histories state that in the reign of the Emperor Yao, in 2287 B.C., a flood caused the waters of the Yellow River to mingle with those of the Yangtze, making a great inland sea. The eminent engineer Yü spent years bringing it under control. A

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combination of high water and a storm to pile it higher around a river-mouth may do marvelous damage; for instance a storm of this sort flooded 3093 square miles of the low-lands of Bengal in 1876, killing 215,-000 people.

Thus the Biblical Deluge (which is probably the same thing as the Flood of the Greek myth of Deukalion) is probably not, as has often been asserted, either a memory of the sinking of Atlantis or the effect of the collision of the earth with some other heavenly body, but is more likely a mythologized account of a series of real disastrous floods that submerged the Euphrates Valley back in Sumerian times, about the fourth millenium B. C. In 1929 the archeologist Leonard Woolley found evidence of these floods in the form of an eight-foot layer of sterile clay, above which were relics of Sumerian type only while below it were found things of both Sumerian and pre-Sumerian type. Sumerian chronicles treat the flood as a historical event and mention kings and cities that existed before and after it, and while the Euphrates is a well-behaved stream today there is reason to think that Iraq at that time had a moister climate than now. Woolley inferred that before the flood the Sumerians had invaded the land and built their cities on the high places, leaving the pre-Sumerians in the lowlands. The flood wiped out the pre-Sumerians but left some of the Sumerian cities standing, and their inhabitants repeopled the land.

But not all the authorities agree with Woolley by any means. Some say that the evidence indicates that the climate of Iraq has not changed appreciably since the dawn of history; the floods in question were more local than he supposes; and if the Euphrates does not go on rampages today, the reason is that so much of its water is bled off for irrigation purposes. Some day perhaps the accumulation of evidence will settle the question.

Inundation of areas below sea-level. If the Mediterranean basin was flooded from the Atlantic as some geologists have suggested, this flood would be the greatest such deluge on record. For a historical case, however, the best example is the swamping of the Zuyder Zee in 1282. This bay was dry land below sea-level until a great storm broke through the natural dykes and let in the North Sea, which flooded the whole area in one day. The industrious Dutch have been busy ever since pumping the water out again. In several other parts of the world—in the Sahara Desert, around the Caspian and Dead Seas, and in Australia—a connection with sea-level water would produce similar floods. In 1906, in fact, the Colorado River flooded a part of Imperial Valley (in Southern California) that is below sea-level in just this way, and the dry 4000-square-mile Lake Eyre in South Australia recently filled with water all of a sudden.

Some Classical authors such as Timagenes and Florus told how the peoples of northern Europe, the Kelts and Germans, had been driven from

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heir homes by a series of such floods. These tales sound very much like he medieval legends of Ys and Lyonesse. The city of Ys was supposed o have stood on the coast of Britany near modern Quimper, out near he end of the peninsula. Its rich and ious fifth-century King Gradlon (the hero of Edouard Lalo's opera *Le Roi d'Ys*) protected the city from igh tides by a wall, but once his dissolute daughter Dahut (pronounced "da-*üt*" or "da-*ü*") got drunk with ner lover and opened the sluice-gate so that the city was flooded. The king, however, had been warned by St. Gwenole, the founder of the first monastery in Brittany, and escaped on a fast horse. Similar tales are told of Lyonesse, an island supposed to have stood off the tip of Cornwall, of Cardigan Bay in Wales, and of a lost city off the Irish coast of Galway.

Gidon, the translator of Bessmertny's fine *Atlantis-Rätsel,* used these references to coastal floods in Strabo and other Classical writers to build his own Atlantis theory. Most geologists agree that during the greatest advances of the Pleistocene ice, England and Ireland were joined to Europe, and that at this time most of the North Sea was a low plain over which the Thames, the Rhine, and other rivers sluggishly wound their way. The plain sank beneath the sea between 25,000 and 10,000 years ago, and today fishermen sometimes dredge up stone-age tools and mammoth teeth from the North Sea bottom.

Gidon, stretching things a bit, postpones this flooding to the Bronze Age and backs up his theory by a study of the distribution of plants in northwestern Europe. He concludes that Plato's story is based upon a series of inundations like that of the Zuyder Zee, plus other elements such as rumors of Atlantic islands, and that Plato's Atlanto-Athenian war is but an echo of the migrations of the Kelts and Germans displaced by these floods. Ingenious, though hardly to be proved in the present state of our knowledge.

The tsunami. The earthquake is certainly a leading wholesale killer of men. Within the last two centuries earthquakes have slain 60,000 people at Lisbon (1755), 30,000 in Calabria (1783), over 100,000 in Messina (1908), over 100,000 in Kansu, China (1920) and over 142,000 in Japan (1923). Chinese history tells of even more destructive quakes like that of 1556 which killed 830,000, and while the figure may be exaggerated the destruction was no doubt great enough. However, there are certain things to remember about earthquakes before making a seismologist of Plato.

The great losses of life in tremblors are *not* due either to the swallowing of people by cracks in the earth or to permanent submersion of land under water. They result from (1) the collapse and burning of houses, (2) landslides, and (3) tsunamis striking a densely populated shore. The Messina quake, for example, caused enormous damage although not a first-class earthquake, because the houses

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of Messina were built with thick walls of loosely cemented rubble masonry with no bracing to speak of, and they all collapsed at the first shock.

As an example of what landslides can do, the Kansu disaster occurred in a region of deep valleys between hills of loess, loose soil that has been piled up by the wind. Thousands of people lived in cave-villages dug into these hillsides, and the quake made the sides of the hills slip down and bury the caves. In the Japanese quake of 1923 a landslide swept down from Mount Hijiridake, four miles from the sea, at 100 miles an hour, wiped out the town of Nebukawa on the shores of Sagami Bay, tossed a railroad station and a waiting train into the bay, and deposited a tangerine grove where the station had been—with most of the trees still upright and growing.

There have however been many earthquakes that caused little damage although just as violent as those I have mentioned, because they took place in thinly populated regions or under the sea. The area of intense damage of even the most violent quake is quite small. Thus the Owens Valley earthquake in California (1872) was probably more severe than the San Francisco quake thirty-four years later, but caused less than 100 casualties.

But occasionally an earthquake under the sea will set up a tsunami—a Japanese word (pronounced "tsuh-*nah*-me") that seismologists use for the earthquake wave, which many people call by the misleading name of "tidal wave." Actually such a quake makes a series of waves, the biggest first. While a tsunami cannot usually be seen by the naked eye out at sea because of its gentle slopes, it becomes higher and steeper as it approaches the shore. If it happens to meet a gently sloping offshore bottom, or a shallow bay opening toward the direction whence it comes, it may rise scores of feet with horrid results. Usually the wave does not take the steep form of a breaker, however, but is more like a sharp sudden super-tide that rises far above normal levels. Some of the record tsunamis are:

Place	*Date*	*Height, ft.*
Lima, Peru	1724	80
Kamchatka	1737	210
Callao, Peru	1746	80
Lisbon	1755	60
Arica, Peru	1868	52
Iquique, Chile	1877	80
Krakatoa	1883	50-100
Sanriku, Japan	1896	50-100

A volcanic eruption instead of an earthquake caused the Krakatoa tsunami, when the island of Krakatoa blew up with a roar heard 3000 miles away and the wave drowned 36,500 people living on the shores of the nearby Indonesian islands. The west coast of South America is particularly liable to these disasters; the Callao wave sank nineteen out of twenty-three ships anchored in its path and carried the rest far inland.

The heights of most tsunamis are estimated from the levels at which damage is done or debris is found, since most sensible folk, seeing a

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sunami coming, would not stand gauping at it long enough to make a good estimate. Also, they reach their greatest heights only along short stretches of beach where the bottom formation is of the right kind. If you are ever at a beach in an earthquake zone and hear a rumble from the sea, which then recedes for hundreds of yards leaving crabs and fish flopping: run, do not walk, for the nearest high ground. You have from five to thirty minutes.

However, even the most violent tsunami does not mean any very great change in the shape of the land, for after the water recedes the shoreline is left much as before.

Earthquakes have caused some considerable tsunamis in the Mediterranean. Classical writers describe them, and Plato, who would not have clearly distinguished between temporary and permanent effects, or between a rise of water and a subsidence of land, might have gotten the idea of the foundering of continents from some such account. In fact, before this book is over I shall point out the very passage that I think may have inspired him.

Plato also, you will remember, said that in the Atlanto-Athenian war the Athenian army was swallowed up in the earth by the great quake. It used to be a general belief that in major earthquakes, cracks would open in the earth big enough to gulp down a whole city. Now however it turns out that this idea is much exaggerated. Earthquakes do open cracks in the ground, but only the sort that a man might break his leg in if he were careless; nowhere nearly big enough to swallow a house, let alone a city or an army.

Permanent submersion. Earthquakes and volcanic eruptions have submerged lands beneath the sea, as happened to the island of Krakatoa in its great eruption of 1883—but the island only had an area of fourteen square miles in the first place, which does not even begin remotely to compare with a continental area like that described by Plato. Now, during an earthquake, besides the quivering of the earth that shakes down houses and starts landslides, there is a slow but permanent displacement of the earth's crust. You see, the blocks of which the earth's crust is composed are always moving slowly in relation to one another, but as the cracks between them are not straight and smooth they cannot slide freely past one another. Therefore they stick together at the edges until the strain of warping them becomes so great that they snap back into their original shape. This "snap" takes several minutes, and the grinding together of the rocks along the fault sets up the vibrations that do most of the earthquake damage. When the motion stops the earth will be displaced in opposite directions along the fault-line for several feet, with fences broken and roads offset; and, more seriously, water-mains in cities are broken so that fires cannot be put out. Here is a table showing the size of some of the largest permanent displacements:

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Place	Date	Length of fault, mi.	Max. horiz. displ., ft.	Max. vert. displ., ft.
Owens Valley	1782	40	16	23
Japan	1891	60	12	20
Alaska	1899	?	?	47
San Francisco	1906	190+	21	3
Newfoundland	1929	?	?	35

As a result of earthquakes in 1868 and 1906, the distance between Mount Tamalpais and Black Mountain, California, increased about ten feet. Evidently the geodetic survey people have a never-ending job, for no sooner do they get the terrain accurately measured than the thing gives a shudder and a squirm and changes on them.

Luckily, while earthquakes occur nearly everywhere, they are common only in two definite earthquake zones or belts. The first of these is a horseshoe-shaped zone around the shores of the Pacific Ocean, including New Zealand, New Guinea, Japan, Alaska, California, and Chile, while the other zone branches off from the first in the East Indies and extends west to the Himalayas, Iran, and southern Europe and into the Atlantic where it peters out.

Atlantists may ask: if the sea-bottom off the coast of Newfoundland dropped thirty-five feet, and the shores of Yakutat Bay in Alaska rose forty-seven feet, each in a single earthquake, why could not one or a few quakes like that sink a continent? A fifty-foot drop could drown quite an area of low flat country like the Florida Everglades.

But the theory, like so many others, does not work in practice. The above figures are for the greatest movements only; the displacements over most of the earthquake areas were much less. For example, while the Alaska 1899 quake caused a maximum rise of forty-seven feet, the total area affected by this quake was only fifteen to twenty miles across, and only over an area six to ten miles wide did the rise exceed twenty feet. Moreover a rise in one place usually balances a sinking in another, since the blocks on each side of the fault are strained in opposite directions, and when the quake comes the bent parts snap in opposite directions.

Finally, records of such submergences in historic times show that they are all local changes. In one of the biggest, for instance, sixty square miles of the Chittagong district of Bengal sank beneath the sea in 1762. That is an area about the size of Staten Island, New York, and less than one-fifth of 1% of Ireland with its 32,000 square miles.

True, Donnelly says a quake submerged 2000 square miles in India in 1819, but this is a misleading description of what happened. The tremor in question took place in the Rann of Kachh, a flat desert of 8000 square miles east of the Indus River Delta. During the southwest monsoon

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this plain is covered with a thin sheet of salt water, and during the Indus flood it is covered with fresh water. The rest of the year it is dry and strewn with dazzling-white patches of salt: a weird, silent place with little life except occasional herds of wild asses.

The quake of 1819, which enlarged the Rann a little, took place along a fifty-mile east-west fault. The land to the north rose about ten feet and that to the south sank an equal amount. A shallow permanent lake of several hundred square miles formed in the western part of the Rann, from whose waters the fort of Sindri long forlornly rose. During the following century, however, silting returned the Rann to much its original shape.

The most that we can say, therefore, is that if there were a large island of very low flat relief, nowhere more than a few feet above sea-level, it *might* be possible, by an earthquake greater than any recorded, to submerge several hundred square miles of it at one clip. But, in the first place, Plato describes Atlantis as mountainous. In the second, a few hundred square miles is but a tiny fraction of an island of continental size. And in the third, such an island would not disappear after submergence, but would remain as a shoal or bank as Plato said Atlantis did. As you can see from a relief map of the North Atlantic ocean-bottom, there is no such bank anywhere near where Plato located Atlantis.

Donnelly thought Dolphin Ridge, which makes an S-curve down the middle of the Atlantic, was a relic of Atlantis. But except for the small and steeply mountainous Azores region, nearly all of Dolphin Ridge is under two or three miles of water, and there is no known way to get a large island down to that depth in anything like the 10,000 years required. The last word on Dolphin Ridge as a site for Atlantis has probably been said by Dr. Maurice Ewing of Columbia University, who lately announced that after thirteen years of exploring the Mid-Atlantic Ridge by sounding, dredging, and lowering a camera and a searchlight down as much as 18,000 feet to photograph the bottom, he had found no trace of sunken cities.

Even when there are no earthquakes, parts of the earth's crust are always rising and falling slowly. But these movements are always on the order of a fraction of an inch a year; thus the Baltic Sea region is rising at a maximum rate of about half an inch a year. As you can see, it will take many thousands of years to dry up the Baltic Sea at that rate—perhaps around 100,000. And glacial periods withdraw so much water from the oceans to form ice-caps over the continents that the sea-level may be lowered anywhere from 200 to 400 feet, so that, for instance, during the fourth Pleistocene glaciation Alaska was connected with Siberia and the British Isles with Europe.

Besides all the forms of change in the earth's surface that we have discussed, there is the common everyday erosion of wind, wave, and rain, the sculpturing effect of rivers and

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glaciers, and the building and washing away of beaches. Normally these are all slow, non-catastrophic processes, even though a big storm can do considerable damage. Thus the 1938 New England hurricane kicked up forty-foot waves, and a storm in 1099 washed away the little island of Loumea off the coast of Kent, England, changing it into a tidal flat, the treacherous Goodwin Sands of sinister repute.

Now, Plato did see that erosion had been at work on the Greek peninsula, for which we must give him due credit. In fact he was one of the first writers to realize that such a process as erosion existed. Where he went wrong was in assuming that Greece must have been whittled down to its present jagged form by a series of deluges, instead of by the slight but persistent day-to-day action of wind and water.

THEN what conclusions does geology teach about lost continents? That there *may* have been such continents in the Paleozoic Era, 200,000,000 years ago, when the highest life consisted of lizard-like reptiles. That these "continents" were probably not real continental masses but narrow isthmuses connecting some of the present land-masses as the Panama Isthmus does now. That these continents, if they existed, lost their shape during the Mesozoic Era, so that by the beginning of the Cenozoic Era the map of the world looked quite modern. That there *may* have been an island where the Azores are now before the end of the Miocene Period, but that it could not have been very impressive and that it probably disappeared at least five or ten million years ago. That while earthquakes and tsunamis can do vast damage, they do not plunge whole continents beneath the waves, nor is there any reason to think they could. That Plato had a vague idea of some of the effects of earthquakes and erosion, but no notion at all of the time it takes these processes to bring about large changes in the earth's surface.

By normal movements of the earth's crust, like that of the Baltic region, or by a long series of terrific earthquakes, it might be possible to submerge a low flat island of good size in 100,000 years or so. That, however, takes us back beyond the last glacial advance, and all the data of history and archeology tell us that civilization did not arise until seven or eight thousand years ago. Furthermore there is good reason to believe that traditions cannot be handed down by word of mouth for more than a few centuries and still retain enough of their original form to be recognized. Therefore the events of 100,000 years ago have nothing to do with Plato's Atlantis.

Moreover such a large flat island would have left remains in the form of shoals, which it has not done, Plato to the contrary notwithstanding. If you want to call the hypothetical land around the Azores that some geologists think may have existed 10,000,000 years ago "Atlantis,"

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see no reason to object.

Provided, that is, that you bear in mind that our ancestors were probably still sitting on a branch and scratching at that time, and could neither have crossed the ocean to reach this isle nor have created a culture when they got there.

Therefore, in spite of the fact that most lands are possible, any idea of connecting them up with Plato's Atlantis breaks down on the time-factor. Geology and history operate on different time-scales: the rise and fall of a civilization is but a tick of the clock in geological time, and during such an interval lands do not change shape enough to matter. So let us, once and for all, grant decent burial to all the theories of Atlantis that assume that a great island did, as Plato says, sink beneath the sea in a day and a night of storm and earthquake.

NO. 13—STUART J. BRYNE *(Concluded from page 2)*

(Concluded from page 2)

demanded my attention.

I remember when I worked for the airlines in Lima, Peru, I also carried on an import-export business downtown in the evenings. Know where I wrote *Prometheus II*? Mostly on streetcars, in a dog-eared notebook. *Colossus* was written the same way—originally entitled *King of the World* and cut from 114,000 to 79,000 words—so you see, regardless of where I am or what I'm doing, there's just no help for me. My wife, out of sheer desperation, has gone to the ultimate extreme. Once in a while she even reads what I write (!)

I am thirty-eight years old. I write *stf* full time out here in North Hollywood. I have a house, a car, two kids, a very understanding wife, a subscription to Other Worlds, two cats and a lawn mower—plus an anti-television bomb shelter where I *try* to average 3000 words daily. (It doesn't always work).

My world is science-fiction. I like the contacts it makes for me. I like the people connected with it. It's a world where people still like to think originally.

That's why I like science-fiction! If I had to vegetate, killing time between one period of automatic response to stereotyped stimuli and the next, I would just lie down and die. So thanks — fellow fen — you have saved my life . . .

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The SEVEN BLACK PRIESTS

By Fritz Leiber

Who shall dig up the mysteries buried in time? For the little creatures, such as mice and men and behemoths, cannot live long enough to find the maps, while the larger creatures, such as mountains, and worlds and stars, will not speak and do not seem to care.

— Sheelba of the Eyeless Face

Illustrated by Michael Becker

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EYES like red lava peered from a face black as dead lava down the sheer mountainside at the snowy ledge that narrowed off into chilly darkness barely touched by dawn. The black priest's heart pounded its rib-cage. Never in his life or his priest-father's before him had intruders come by this narrow way that led from the Outer Sea across the mountains known as The Bones of the Old Ones. Never in three long returns of the Year of Monsters, never in four sailings of the ship to tropic Klesh to get them wives, had any but he and his fellow-priests trod the way below. Yet he had always guarded it as faithfully and warily as if it were the nightly assault-route of blasphemy-bent spearmen and bowmen.

There it came again, and unmistakably! — the rumble of singing. To judge from the tone, the man must have a chest like a bear's. As if he had drilled for this nightly (and he had) the black priest laid aside his conical hat and stepped out of his fur-lined shoes and slipped off his fur-lined robe, revealing his skinny-limbed, sag-bellied, well-greased frame.

Moving back in the stony niche, he selected a narrow stick from a closely-shielded fire and laid it across a pit in the rock. Its unsputtering flame revealed that the pit was filled to a hand's-breadth of the top with a powder that glittered like smashed jewels. He judged it would take some thirty slow breaths for the stick to burn through at the middle.

He silently returned to the edge of the niche, which was the height of three tall men—seven times his own height—above the snowy ledge. And now, far along that ledge, he could dimly distinguish a figure—no, two. He drew a long knife from a tuck in his loin-cloth and, crouching forward, poised himself on hands and toes. He breathed a prayer to his strange and improbable god. Somewhere above, ice or rocks creaked and snapped faintly, as if the mountain too were flexing its muscles in murderous anticipation.

"GIVE US the next verse, Fafhrd," merrily called the foremost of the two snow-treaders. "You've had thirty paces to compose it, and our adventure took no longer. Or is the hoot-owl of bardic inspiration frozen at last in your throat?"

The one who thus called looked kin to the night, supple yet strong, a short man with a long easy gait. He was clad all in close garments of gray, even to the hood which shadowed his swart features but could not conceal their pug-nosed impudence. A thin sword, slightly curved, hung at his side and his hand looked deft to wield it. This sword was affectionately known to its owner as Scalpel, since it could let the heart's blood out as deftly as a surgeon. The owner of the sword was known as the Gray Mouser, because he hunted men as skillfully and as silently as a cat.

He whom the Gray Mouser named Fafhrd was rather taller than the

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Mouser was short—a huge man with wrists thick as a hero's ankles, yet the withal. His garments were of pools and furs. A great golden clasp gleamed dully on his chest and a golden band, tilted awry, confined his snarled reddish hair. His white-skinned face, with gray eyes wide set, had a calm bold look to it, though the brow was furrowed in thought. From over his right shoulder protruded a bow, while from over his left shoulder gleamed the sapphire eyes of a brazen dragon-head that was the pommel of a longsword slung on his back.

This one's brow cleared, and as if some more genial mountain than the frozen one they traveled along had given tongue, he sang:

"Oh, Lavas Laerk
Had a face like a dirk
And of swordsmen twenty-and-three. . ."

Fafhrd was referring to the villain of their last adventure, which had led them to a strange sunken treasure-rich land popped for a few hours above the cold waves of the Outer Sea, and which had left them treasureless and with their sloop wrecked on the chilly coast from which rose the forbidding crags of The Bones of the Old Ones. He continued:

"And his greased black ship
Through the waves did slip—
'Twas the sleekest craft at sea;
Yet all helped him nought
When he was caught
By magic, the Mouser, and me.
And now he feeds fishes
The daintiest dishes,
But—"

The words broke off and the Gray Mouser heard the hissing scuff of leather on snow. Whirling around, he saw Fafhrd hurtle over the side of the cliff, and the Mouser had a moment to wonder whether the huge Northerner, maddened by his own doggerel, had decided to illustrate dramatically Lavas Laerk's plunge to the bottomless deeps.

The next moment Fafhrd caught himself with elbows and hands on the margin of the ledge. Simultaneously, a black and gleaming form hit the spot he had just desperately vacated, broke its fall with bent arms and hunched shoulders, spun over in a somersault, and lunged at the Mouser with a knife that flashed like a splinter of the moon. The knife was about to take the Mouser in the belly when Fafhrd, supporting his weight on one forearm, twitched the attacker back by an ankle. At this the small black one hissed low and horribly, turned again, and lunged at Fafhrd. But now the Mouser was roused at last from the shocked daze that he assured himself could never grip him in a less hatefully cold country. He dove forward at the small black one, diverting his thrust — there were sparks as the weapon struck stone within a finger's-width of Fafhrd's arm—and skidding his greased form off the ledge beyond Fafhrd. The small black one swooped out of sight as silently as a bat.

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Fafhrd, dangling his great frame over the abyss, finished his verse:

"But the daintiest dish is he."

"Hush, Fafhrd," the Mouser hissed, stooping as he listened intently. "I think I heard him hit."

Fafhrd absentmindedly eased himself up to a seat. "Not if that chasm is half as deep as the last time we saw its bottom, you didn't," he assured his comrade.

"But what was he?" the Mouser asked frowningly. "He looked like a man of Klesh."

"Yes, with the jungle of Klesh as far from here as the moon," Fafhrd reminded him with a chuckle. "Some maddened hermit frostbitten black, no doubt. There are strange skulkers in these little hills, they say."

The Mouser peered up the dizzy mile-high cliff and spotted the nearby niche. "I wonder if there are more of him?" he questioned uneasily.

"Madmen commonly go alone," Fafhrd asserted, getting up. "Come, small nagger, we'd best be on our way if you want a hot breakfast. If the old tales are true, we should be reaching the Cold Waste by sun-up —and there we'll find a little wood at least."

At that instant a great glow sprang from the niche from which the small attacker had dropped. It pulsed, turning from violet to green to yellow to red.

"What makes that?" Fafhrd mused, his interest roused at last. "The old tales say nothing of fire-vents in the Bones of the Old Ones. Now if I were to give you a boost, Mouser, I think you could reach that knob and then make your own way—"

"Oh no," the Mouser interrupted, tugging at the big man and silently cursing himself for starting the question-asking. "I want my breakfast cooked over more wholesome flames. And I would be well away from here before other eyes see the glow."

"None will see it now, small dodger of mysteries," Fafhrd said chucklingly, letting himself be urged away along the path. "Look, even now it dies."

But at least one other eye had seen the pulsing glow—an eye as large as a squid's and bright as the Dog Star.

"HA, Fafhrd!" cried the Gray Mouser gaily in the full-broken dawn, "There's an omen to warm our frozen hearts! A green hill winks at us frosty men—gives us the glad eye like a malachite-smeared dusky courtesan of Klesh!"

"She's as hot as a courtesan of Klesh, too," the huge Northerner supplemented, rounding the brown crag's bulging shoulder in his turn, "for she's melted all the snow."

It was true. Although the far horizon shone white and green with the snows and glacial ice of the Cold Waste, the saucer-like depression in the foreground held a small unfrozen lake. And while the air was still chill around them, so that their breath drifted away in small white clouds, the brown ledge they trod was bare.

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Up from the nearer shore of the lake rose the hill to which the Mouser had referred, the hill from one star-small point on which the new-risen sun's rays still glittered at them blindingly.

"That is, if it is a hill," Fafhrd added softly. "And in any case, whether a courtesan of Klesh or hill, she has several faces."

The point was well taken. The hill's green flanks were formed of crags and hummocks which the imagination could shape into monstrous faces—all the eyes closed save the one that twinkled at them. The faces melted downward like wax into huge stony rivulets—or might they be elephantine trunks?—that plunged into the unruffled acid-seeming water. Here and there, among the green were patches of dark red rock that might be blood, or mouths. Clashing nastily in color, the hill's rounded summit seemed to be composed of a fleshily pink marble. It too persisted in resembling a face—that of a sleeping ogre. It was crossed by a stretch of vividly red rock that might be the ogre's lips. From a slit in the red rock, a faint vapor rose.

The hill had more than a volcanic look. It seemed like an upwelling from a more savage, primal, fiercer consciousness than any that even Fafhrd and the Gray Mouser knew, an upwelling frozen in the act of invading a younger, weaker world—frozen yet eternally watchful, and waiting, and yearning.

And then the illusion was gone—or four-faces-out-of-five gone and the

The Gray Mouser

fifth wavering. The hill was just a hill again—an odd volcanic freak of the Cold Waste—a green hill with a glitter.

Fafhrd let out a gusty sigh. He surveyed the farther shore of the lake. It was hillocky, and matted with a dark vegetation that unpleasantly resembled fur. At one point there rose from it a stubby pillar of rock almost like an altar. Beyond the hairy bushes, which were here and there flecked with red-leafed ones, stretched the ice and snow, broken only occasionally by great rocks and rare culmps of dwarfed trees.

But something else was foremost in the Mouser's thoughts.

"The eye, Fafhrd. The glad, glittering eye!" he whispered, dropping his voice as though they were in a crowded street and some informer or rival thief might overhear. "Only once before have I seen such a gleam,

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and that was by moonlight, across a king's treasure chamber. That time I did not come away with a huge diamond. A guardian serpent prevented. I killed the wriggler, but its hiss brought other guards.

"But this time there's only a little hill to climb. And if at this distance the gem gleams so bright, Fafhrd. . ." his hand dropped and gripped his companion's leg, at the sensitive point just above the knee, for emphasis. ". . . think how big!"

The Northerner, frowning faintly at the violent squeeze as well as at his doubts and misgivings, nevertheless sucked an icy breath in appreciative greed.

"And we poor shipwrecked marauders," continued the Mouser raptly "will be able to tell the gaping and envious thieves of Lankhmar that we not only crossed the Bones of the Old Ones, but looted them on the way."

And he went skipping gaily down the skimpy ledge that merged into the narrow, lake-edged, rocky saddle that joined this greater mountain with the green one. Fafhrd followed more slowly, gazing steadily at the green hill, waiting for it to turn back into faces again, or to turn to no faces at all. It did neither. It occurred to him that it might have been partly shaped by human hands, and after that, the notion of a diamond-eyed idol seemed less implausible. At the far end of the saddle, just at the base of the green hill, he caught up with the Mouser, who was studying a flat, dark rock covered with gashes which a moment's glance told Fafhrd must be artificial.

"The ruins of tropic Klesh!" the Northerner muttered. "What should such hieroglyphs be doing so far from their jungle?"

"Chiseled, no doubt, by some hermit frostbitten black, whose madness taught him the Kleshic language," the Mouser observed sardonically. "Or have you already forgotten last night's knifer?"

Fafhrd shook his head curtly. Together they pored over the deep-chopped letters, bringing to bear knowledge gained from the perusing of ancient treasure-maps and the deciphering of code-messages carried by intercepted spies.

"The seven black. . ." Fafhrd read laboriously.

". . . priests," the Mouser finished for him. "They're in it, whoever they may be. And a god or beast or devil — that writhing hieroglyph means any one of the three, depending on the surrounding words, which I don't understand. It's very ancient writing. And the seven black priests are to serve the writhing hieroglyph, or to bind it—again either might be meant, or both."

"And so long as the priesthood endures," Fafhrd took up, "that long will the god-beast-devil lie quietly . . . or sleep . . . or stay dead . . . or not come up. . ."

Abruptly the Mouser bounded straight into the air, fanning his feet. "This rock is *hot*," he complained.

Fafhrd understood. Even through the thick walrus-soles of his boots he

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was beginning to feel the unnatural warmth.

"Hotter than the floor of hell," the Mouser observed, hopping first on one foot and then the other. "Well, what now, Fafhrd? Shall we go up, or not?"

Fafhrd answered him with a sudden shout of laughter. "You decided that, little man, long ago! Was it *I* who started to talk about huge diamonds?"

So up they went, choosing that point where a gigantic trunk, or tentacle, or melted chin strained from the encasing granite. It was not an easy climb, even at the beginning, for the green stone was everywhere rounded off, showing no marks of chisel or ax—which rather dampened Fafhrd's vague theory that this was a hill half-formed by human-wielded tools.

Upward the two of them edged and strained, their breath blowing out in bigger white clouds although the rock was uncomfortably hot under their hands. After an inch-by-inch climb up a slippery surface, where hands and feet and elbows and knees and even toasted chin must all help, they stood at last on the lower lip of one of the green hill's mouths. Here it seemed their ascent must end, for the great cheek above was smooth and sloped outward a spear's length above them.

But Fafhrd took from the Mouser's back a rope that had once guyed the mast of their shipwrecked sloop, made a noose in it, and cast it up toward the forehead above, where a stubby horn or feeler projected. It caught and held. Fafhrd put his weight on it to test it, then looked inquiringly at his companion.

"What have you in mind?" the Mouser asked, clinging affectionately to the rock-face. "This whole climb begins to seem mere foolishness."

"But what of the jewel?" Fafhrd replied in pleasant mockery. "So big, Mouser, so big!"

"Likely just a bit of quartz," the Mouser said sourly. "I have lost my hunger for it."

"But as for me," Fafhrd cried, "I have only now worked up a good appetite."

And he swung out into emptiness, around the green cheek and into thin, brilliant sunlight.

It seemed to him as if the still lake and the green hill were rocking, instead of himself. He came to rest below the face's monstrously pouchy eyelid. He climbed up hand over hand, found good footing on the ledge that was the eyelid pouch, and twitched the end of the rope back to the Mouser, whom he could no longer see. On the third cast it did not swing back. He squatted on the ledge, bracing himself securely to guy the rope. It went tight in his hands. Very soon the Mouser stepped onto the ledge beside him.

The gayety was back in the small thief's face, but it was a fragile gayety, as though he wanted to get this done with quickly. They edged their way along the great eye-pouch until they were directly below the fancied pupil. It was rather above Fafhrd's

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head, but the Mouser, nimbly hitching himself up on Fafhrd's shoulders, peered in readily.

Fafhrd, bracing himself against the green wall, waited impatiently. It seemed as if the Mouser would never speak. "Well?" he asked finally, when his shoulders had begun to ache from the Mouser's weight.

"Oh, it's a diamond, all right." The Mouser sounded oddly uninterested. "Yes, it's big. My fingers can just about span it. And it's cut like a smooth sphere—a sort of diamond eye. But I don't know about getting it out. It's set very deep. Should I try? Don't bellow so, Fafhrd, you'll blow us both off! I suppose we might as well take it, since we've come so far. But it won't be easy. My knife can't . . . yes, it can! I thought it was rock around the gem. But it's tarry stuff, Squidgy. There! I'm coming down."

Fafhrd had a glimpse of something smooth, globular and dazzling, with an ugly, ragged, tarry circlet clinging to it. Then it seemed that someone flicked his elbow lightly. He looked down. Momentarily he had the strangest feeling of being in the green steamy jungle of Klesh. For protruding from the brown fur of his cloak was a wickedly barbed little dart, thickly smeared with a substance as black and tarry as that disfiguring the diamond eye.

He quickly dropped flat on the ledge, crying out to the Mouser to do the same. Then he carefully tugged loose the dart, finding to his relief that, although it had nicked the thick hide of his cloak beneath the fur, it had not touched flesh.

"I think I see him," called the Mouser, peering down cautiously over the protected ledge. "A little fellow with a very long blowgun and dressed in furs and a conical hat. Crouching there in those dark bushes across the lake. Black, I think, like our knifer last night. A Kleshian, I'd say, unless he's one more of your frostbitten hermits. Now he lifts the gun to his lips. Watch yourself!"

A second dart pinged against the rock above them, then dropped down close by Fafhrd's hand. He jerked it away sharply.

There was a whirring sound, ending in a muted snap. The Mouser had decided to get a blow in. It is not easy to swing a sling while lying prone on a ledge, but the Mouser's missile crackled into the furry bushes close to the black blowgunner, who immediately ducked out of sight.

It was easy enough then to decide on a plan of action, for few were available. While the Mouser raked the bushes across the lake with sling shots, Fafhrd went down the rope. Despite the Mouser's protection, he fervently prayed that his cloak be thick enough. He knew from experience that the darts of Klesh are nasty things. At irregular intervals came the whirr of the Mouser's casts, cheering him on.

Reaching the green hill's base, he strung his bow and called up to the Mouser that he was ready in his turn to cover the retreat. His eyes searched the furry cliffs across the

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lake, and twice when he saw movement he sent an arrow from his precious store of twenty. Then the Mouser was beside him and they were racing off along the hot mountain edge toward where the cryptically ancient glacial ice gleamed green. Often they looked back across the lake at the dubious furry bushes spotted here and there with blood-red ones, and twice or thrice they thought they saw movement in them — movement coming their way. Whenever this happened, they sent an arrow or a stone whirring, though with what effect they could not tell.

"The seven black priests—" Fafhrd muttered.

"The six," the Mouser corrected. "We killed one of them last night."

"Well, the six then," Fafhrd conceded. "They seem angry with us."

"As why shouldn't they be?" the Mouser demanded. "We stole their idol's only eye. Such an act annoys priests tremendously."

"It seemed to have more eyes than that one," Fafhrd asserted thoughtfully, "if only it had opened them."

"Thank Sheelba it didn't!" the Mouser hissed. "And 'ware that dart!"

Fafhrd hit the dirt—or rather the rock—instantly, and the black dart skirred on the ice ahead.

"I think they're unreasonably angry," Fafhrd asserted, scrambling to his feet.

"Priests always are," the Mouser said philosophically, with a sidewise shudder at the dart's black-crusted point.

"At any rate, we're rid of them," Fafhrd said with relief, as he and the Mouser loped onto the ice. The Mouser leered at him sardonically, but Fafhrd didn't notice.

All day they trudged rapidly across the green ice, seeking their way southward by the sun, which got hardly a hand's-breadth above the horizon. Toward night the Mouser brought down two low-winging arctic birds with three casts of his sling, while Fafhrd's long-seeing eyes spied a black cave-mouth in an outcropping of rock under a great snowy slope. Luckily there was a clump of dwarfed trees, uprooted and killed by moving ice, near the cave's mouth, and soon the two adventurers were gnawing tough, close-grained, brown bird and watching the flickering little fire in the cave's entrance.

Fafhrd stretched hugely and said, "Farewell to all black priests! That's another bother done with." He reached out a large, long-fingered hand. "Mouser, let me see that glass eye you dug from the green hill."

The Mouser without comment reached into his pouch and handed Fafhrd the brilliant tar-circletted globule. Fafhrd held it between his big hands and viewed it thoughtfully. The firelight shone through it and spread from it, highlighting the cave with red, baleful beams. Fafhrd stared unblinkingly at the gem, until the Mouser decided the big Northerner must be blinded. The Mouser became very conscious of the great silence around them, broken only by the tiny but frequent crackling of

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the fire and the large but infrequent cracking of the ice outside. He felt weary to death, yet somehow couldn't consider sleep.

Finally Fafhrd said, in a faint unnatural voice, "The earth we walk on once lived—a great hot beast, breathing out fire and spewing molten rock. Its constant yearning was to spit red-hot stuff at the stars. This was before all men."

"What's that?" the Mouser querried, stirring from his half-trance.

"Now men have come, the earth has gone to sleep," Fafhrd continued in the same hollow voice, not looking at the Mouser. "But in its dream it thinks of life, and stirs, and tries to shape itself into the form of men."

"What's that, Fafhrd?" the Mouser repeated uneasily. But Fafhrd answered him with sudden snores. The Mouser carefully teased the gem from his comrade's fingers. Its tarry rim was soft and slippery—repugnantly so, almost as if it were a kind of black tissue. The Mouser put the thing back in his pouch. A long time passed. Then the Mouser touched his companion's fur-clad shoulder. Fafhrd woke with a swift shudder. "What is it, Small One?" he demanded.

"Morning," the Mouser told him briefly, pointing over the ashes of the fire at the lightening sky.

As they stooped their way out of the cave, there was a faint roaring sound. Looking over the snow-rim and up the slope, Fafhrd saw hurtling down toward them a vast white globe that grew in size in the very brief time while he watched. He and the Mouser barely managed to dive back into the cavern before the earth shook and the noise became earsplitting and everything went momentarily dark as the huge snowball thundered over the cave mouth. They both smelled the cold sour ashes blown into their faces from the dead fire, by the globe's passing, and the Mouser coughed.

But Fafhrd instantly lunged out of the cave, swiftly stringing his great bow and fitting to it an arrow long as his arm. He sighted up the slope. At the slope's summit, tiny as bugs beyond the wickedly-barbed arrowhead, were a half-dozen conical-hatted figures, sharply silhouetted against the yellow-purple dawn.

They seemed busy as bugs too, fussing furiously with a white globe as tall as themselves.

Fafhrd let out half a breath, paused, and loosed his arrow. The tiny figures continued for several breaths to worry the stubborn globe. Then the one nearest it sprang convulsively and sprawled atop it. The globe began to roll down the slope, carrying the arrow-pierced black priest with it and gathering snow as it went. Soon he was hidden in the ever-thickening crust, but not before his flailing limbs had changed the globe's course, so that it missed the cave-mouth by a spear's length.

As the thundering died, the Mouser peered out cautiously.

"I shot the second avalanche aside," Fafhrd remarked casually.

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"Let's be moving."

The Mouser would have led the way around the hill—a long and winding course looking treacherous with snow and slippery rock, but Fafhrd said, "No, straight over the top, where their snowballs have cleared a path for us. They're much too cunning to expect us to take that path."

However, he kept an arrow nocked to his bow as they made their way up the rocky slope, and moved quite cautiously as they surmounted the naked crest. A white landscape green-spotted with glacial ice opened before them, but no dark specks moved up it and there were hiding places nearby. Fafhrd unstrung his bow and laughed.

"They seemed to have scampered off," he said. "Doubtless they're running back to their little green hill to warm themselves. At any rate, we're rid of them."

"Yes, just as we were yesterday," the Mouser commented drily. "The fall of the knifer didn't seem to worry them at all, but doubtless they're scared witless because you put an arrow into another of their party."

"Well, at all events," Fafhrd said curtly, "Granting that there were seven black priests to begin with, there are now but five."

And he led the way down the other side of the hill, taking big reckless strides. The Mouser followed slowly, a stone rocking in his dangled sling and his gaze questing restlessly to every side. When they came to snow, he studied it, but there were no tracks as far as he could see to either side. By the time he reached the foot of the hill, Fafhrd was a sling's cast ahead. To make up the distance, the Mouser began a soft-footed, easy, lope, yet he did not desist from his watchfulness. His attention was attracted by a squat hummock of snow just ahead of Fafhrd. Shadows might have told him whether there was anything crouched behind it, but the yellow-purple haze hid the sun, so he kept on watching the hummock, meanwhile speeding up his pace. He reached the hummock and saw there was no one behind it almost at the moment he caught up with Fafhrd.

The hummock exploded into a scatter of snow-chunks and a black sag-bellied figure erupted out of it at Fafhrd, ebon arm extended for a knife-slash at the Northerner's neck. Almost simultaneously the Mouser lunged forward, whirling his sling backhanded. The stone, still in the leather loop, caught the slasher high in the face. The curved knife missed by inches. The slasher fell. Fafhrd looked around with mild interest.

The attacker's forehead was so deeply indented that there could be no question of his condition, yet the Mouser stared down at him for a long time. "A man of Klesh, all right," he said broodingly, "but fatter. Armored against the cold. Strange they should have come so far to serve their god." He looked up and without raising his arm from his side, sharply twirled his sling—

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much as a bravo might in some alley as a warning to skulkers.

"Four to go," he said and Fafhrd nodded slowly and soberly.

All day they trod across the Cold Waste—watchfully, but without further incident. A wind came up and the cold bit. The Mouser pulled in his hood so that it covered his mouth and nose, while even Fafhrd hugged his cloak closer around him.

As the sky was darkening to umber and indigo, Fafhrd suddenly stopped and strung his bow and let fly. For a moment the Mouser, who was a bit bothered by his comrade's bemused air, thought that the Northerner was shooting at mere snow. Then the snow leaped, kicking four grey hoofs, and the Mouser realized Fafhrd had brought down white-furred meat. He licked his numb lips greedily as Fafhrd swiftly bled and gutted the animal and slung it over his shoulder.

A little way ahead was an outcropping of black rock. Fafhrd studied it for a moment, then took an ax from belt and struck the rock a careful blow with the back of the head. The Mouser eagerly gathered in the corner of his cloak the large and small chunks that flaked off. He could feel their oiliness and he felt warmed by the mere thought of the rich flame they would make.

Just beyond the outcropping was a low cliff and at its base a cave-mouth slightly sheltered by a tall rock perhaps two spears' lengths in front of it. The Mouser felt a great glow of anticipated content as he followed Fafhrd toward the inviting dark orifice. He had greatly feared, being numb with cold, aching with fatigue, famished, that they might have to camp out and content themselves with the bones of yesternight's birds. Now in an astonishingly short space they had found food, fuel, shelter. So wonderfully convenient. . .

And then, as Fafhrd rounded the sheltering rock and strode toward the cave-mouth, the thought came to the Mouser: "Much too convenient." Without further thought, he dropped the coal and sprang at his comrade, hurling the huge fellow flat on his face.

A dart hissed close over him and clicked faintly against the sheltering rock. Again without pause the Mouser darted into the cave-mouth, whipping his sword Scalpel from its sheath. As he entered the cave he zigged a bit to the left, then zagged suddenly to the right and flattened himself against the rocky wall there, slashing prudently at the darkness as he tried to pierce it with his gaze.

Across from him, on the other side of the mouth, the cave bent back in an elbow, the end of which, to the Mouser's amazement, was not dark but dimly lit by a pulsing light that seemed neither that of fire or the outer twilight. If anything, it resembled the unnatural glow they had seen back in the Bones of the Old Ones.

But unnatural or not, it had the advantage of silhouetting the Mouser's antagonist. The squat fellow was now gripping a curved knife rather than a blowgun. As the Mouser

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sprang at him, he scuttled back along the elbow and dodged around the corner from behind which the pulsing glow came. To the Mouser's further amazement, he felt not only a growing warmth as he pursued but also moistness in the air. He rounded the corner. The black priest, who'd stopped just beyond it, lunged at him. But the Mouser was prepared for this and Scalpel took his adversary neatly in the chest, just off center, transfixing him, while the curved knife slashed only steamy air.

For a moment the fanatic priest tried to work his way up along the thin blade and so get within striking distance of the Mouser. Then the nefandous glare died in the priest's eyes and he slumped, while the Mouser distastefully whipped out the blade.

The priest tottered back into the steamy glow, which the Mouser now saw came from a small pit just beyond. With a blood-choked gargling moan the black one stepped back into the pit and vanished. There was a scuff of flesh against rock, a pause, and then a faint splash, and then no sound at all, except for the soft, distant bubbling and seething that the Mouser now realized came steadily from the pit—that is, until Fafhrd came clumping up belatedly.

"Three to go," the Mouser informed him casually. "The fourth is cooking at the bottom of that pit. But I want broiled dinner tonight, not boiled, and besides I haven't a long enough fork. So fetch in the black stones I dropped."

Fafhrd objected at first, eyeing the steam-and-fire vent almost superstitiously, and urged that they seek other lodging. But the Mouser argued that to spend the night in the now-empty, easily scanned cave was far better than to risk ambush in the outer dark. To the Mouser's relief Fafhrd agreed after peering down the pit for possible handholds that might help a live or boiled attacker. The small man had no desire to leave this pleasantly steamy spot.

The fire was built against the outer wall of the cave and near the mouth, so that no one could creep in without being revealed by its flames. After they had polished off some grilled liver and a number of tough, seared chops and had tossed the bones into the hot fire, where they sputtered merrily, Fafhrd settled back against the rocky wall and asked the Mouser to let him look at the diamond eye.

The Mouser complied with some reluctance, once again experiencing repugnance for the frostily-gleaming stone's tarry circlet. He had the feeling that Fafhrd was going to do something unwise with the stone—what, he didn't know. But the Northerner merely glanced at it for a moment, almost puzzledly, and then thrust it away in *his* pouch. The Mouser started to object, but Fafhrd curtly replied that it was their common property. The Mouser could not but agree.

They had decided to stand watch by turns, Fafhrd first. The Mouser snuggled his cloak around him, and

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tucked under his head a pillow made of pouch and folded hood. The coal fire flamed, the strange glow from the pit pulsed wanly. The Mouser found it decidedly pleasant to be between the dry heat of the former and the moist warmth of the latter, both spiced by the chill air from outside. He watched the play of shadows through half-closed eyes. Fafhrd sitting between the Mouser and the flames, bulked reassuringly large, wide-eyed, and alert. The Mouser's last thought as he drowsed off was that he was rather glad that Fafhrd had the diamond. It made his own pillow that much less bumby.

He woke hearing an odd soft voice. The fire had burned low. For a frightening moment he thought that a stranger had somehow come into the cave—perhaps muttering hypnotic words to put a sleepspell on his comrade. Then he realized that the voice was the one Fafhrd had used last night, and that the Northerner was staring into the diamond eye as if he were seeing limitless visions there, and rocking it slowly to and fro. The rocking made the glittering beams from the gem synchronize with the pulsing glow in a way the Mouser didn't like.

"Earth's blood," Fafhrd was murmuring, his voice almost a chant, "still pulses strongly under its wrinkled rocky skin, and still bleeds hot and raw from wounds in the mountains. But it needs the blood of heroes before it can shape itself into the form of men."

The Mouser jumped up, grabbed Fafhrd by the shoulder and shook him gently.

"Those who truly worship the earth," Fafhrd went on entrancedly, as if nothing had happened, "guard its mountain-wounds and wait and pray for the great day of fulfillment when the earth shall wake again, this time in man's form, and rid itself of the vermin called men."

The Mouser's shaking became violent and Fafhrd work with a start—only to assert that he had been awake all the time and that the Mouser had been having a nightmare. He laughed at the Mouser's counterassertions and would not budge from his own. Nor would he give up the diamond, but tucked it deep in his pouch, gave two huge yawns and fell asleep while the Mouser was still expostulating.

The Mouser did not find his watch a pleasant one. In place of his former trust in this rocky nook, he now scented danger in every direction and peered as often at the steamy pit as at the black entrance beyond the glowing coals, entertaining himself with vivid visions of a cooked priest somehow writhing his way up. Meanwhile the more logical part of his mind dwelled on an unpleasantly consistent theory that the hot inner earth was indeed jealous of man, and that the green hill was one of those spots where inner earth was seeking to escape its rocky jacket and form itself into all-conquering man-shaped giants of living stone. The black Kleshite priests would be earth-worshippers eager for the destruction of all other men. And the diamond

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eye, far from being a bit of valuable and harmless loot, was somehow alive and seeking to enchant Fafhrd with its glittering gaze, and lead him to an obscure doom.

Three times the Mouser tried to get the gem away from his comrade, the third time by slitting the bottom of the Northerner's pouch. But though the Mouser knew himself the most cunning cutpurse in Lankhmar, though perhaps a trifle out of practice, Fafhrd each time hugged the pouch tighter to him and muttered peevishly in his sleep and unerringly brushed away the Mouser's questing hand. The Mouser thought of taking the diamond eye by force, but was stopped by the unreasoning conviction that this would touch off murderous resistance in the Northerner. Indeed, he had strong misgivings as to the state in which his comrade would awake.

But when the cave-mouth finally lightened, Fafhrd roused himself with a shake and a morning yawn-and-growl as stentorious and genial as any the Mouser had ever winced at. Fafhrd acted with such chipper, clear-headed enthusiasm that the Mouser's fears were quite blown away, or at least driven deep into the back of his mind. The two adventurers had a cold-meat breakfast, and carefully wrapped up and packed away the legs and shoulders that had been roasted during the night.

Then while Fafhrd covered him with arrow nocked to taut bowstring, the Mouser darted out and sprang to cover behind the outside of the stone sheltering the entrance. Bobbing up here and there for quick glances over its top, he scanned the cliff above the cave for any sign of ambushers. Holding his sling at the ready, he covered Fafhrd while the latter rushed forth. After a bit they satisfied themselves that there were at least no nearby lurkers in the pale dawn, and Fafhrd led off with a swinging stride. The Mouser followed briskly enough, but after a little while became possessed with a doubt. It seemed to him that Fafhrd was not leading them straight along their course, but swinging rather sharply off toward the left. It was hard to be at all sure, for the sun had still not broken through and the sky was filled with purplish and yellowish scarflike clouds, while the Mouser could not tell for certain just which way they had come yesterday, since things are very different looking back than looking forward.

Nevertheless he voiced his doubts after a while, but Fafhrd replied with such good-humored assurance, "The Cold Waste was my childhood playground, as familiar to me as Lankhmar's mazy alleys or the swamp-ways of Sheelba to you," that the Mouser was almost completely satisfied. Besides, the day was windless, which pleased the Mouser no end, because of his worship of warmth.

After a good half-day's trudging they mounted a snowy rise and the Mouser's eyebrows rose incredulously at the landscape ahead: a titled plain of green ice smooth as glass. Its upper edge, which lay somewhat to

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their right, was broken by jagged pinnacles, like the crest of a great smooth wave. Its lower slope stretched down for a vast distance to their left, finally losing itself in what looked like a white mist, while straight ahead there seemed to be no end.

The plain was so green that it looked like a giddily enchanted ocean, tilted at the command of some mighty magician. The Mouser felt sure it would reflect the stars on a clear night.

He was somewhat horrified, though hardly surprised, when his comrade coolly proposed that they walk straight across it. The Northerner's shrewd gaze had spotted a section just ahead of them where the slope leveled off briefly before sweeping down again. Along this level ribbon, Fafhrd asserted, they could walk with ease—and then the Northerner set out without waiting for a reply.

With a fatalistic shrug the Mouser followed, walking at first as if on eggs and with many an uneasy glance at the great downward slope. He wished he had bronze-cleated boots—even ones worn flat like Fafhrd's—or some sort of spurs to fix to his own slippery shoes, so that he'd have a better chance of stopping himself if he did start to slide. After a while he grew more confident and took longer and swifter, if still most gingerly steps, and the gap Fafhrd had put between them was closed.

They had walked for perhaps three bowshots across the plain, and still had no sight of an end to it, when a flicker of movement in the corner of his right eye made the Mouser look around.

Swiftly and silently sliding down toward them from some hiding place in the ragged crest, came the remaining black priests, three abreast. They kept their footing like expert skiers—and indeed they seemed to be wearing skis of some sort. Two of them carried spears improvised by thrusting dagger grips into the muzzles of their long blowguns, while the midmost had as lance a narrow, needle-sharp icicle or ice-shard at least eight feet long.

No time now for slings and arrows, and of what use to sword-skewer one who has already spear-skewered you? Besides, an icy slope is no place for dainty near-stationary maneuvering. Without a word to Fafhrd, so certain he was that the Northerner would do the same, the Mouser took off down the dreaded leftward slope.

It was as if he had cast himself into the arms of a demon of speed. Ice whirred softly under his boots, quiet air became cold wind whipping his garments and chilling his cheeks.

But not enough speed. The skiing black priests had a headstart. The Mouser hoped the level stretch would wreck them, but they merely sailed out from it with squat majesty and came down without losing footing—and hardly two spears' length behind. Daggers and ice-lance gleamed wickedly.

The Mouser drew Scalpel and after trying fruitlessly to pole himself along with it to greater velocity, squatted down so as to offer the least

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resistance to the air. Still the black priests gained. Fafhrd beside him dug in his cleated boots so that ice-dust spouted up fountain-wise, and shot off in a great swing sidewards. The priest bearing the ice-lance swerved after him.

Meanwhile the two other priests caught up with the Mouser. He arched his hurtling body away from the spearthrust of the first and knocked that of the second aside with Scalpel, and for the next few moments there was fought the strangest sort of duel—almost as if they weren't moving at all, since they were all moving at the same speed. At one point the Mouser was sliding down backwards, parrying the nasty blowgun-spears with his shorter weapon.

But two against one always helps, and this time might have proved fatal, if Fafhrd had not just then caromed back from his great sidewards swing full of speed from some slope he alone had seen, and whirled his dragon-pommeled longsword. He passed just behind the two priests and then their heads were skidding along separately from their bodies, though all at the same speed.

Yet it would have been all up with Fafhrd, for the last black priest, perhaps helped by the weight of his ice-lance, came hurtling after Fafhrd at even greater speed and would have skewered him except the Mouser deflected the ice-lance upward, with Scalpel held in two hands, and the icy point merely ruffled Fafhrd's streaming red hair.

The next moment they all plunged into the white, icy mist. The last glimpse the Mouser had of Fafhrd was of his speeding head alone, cutting a wake in the neck-high mist. Then the Mouser's eyes were beneath the mist's surface.

It was most strange to the Mouser to skim swiftly through milky stuff, ice-crystals stinging his cheeks, not knowing each instant if an unknown barrier might wreck him. He heard a grunt that sounded like Fafhrd's, and on top of that a tingling crash, which might have been the ice-spear shattering; followed by a sighing, tortured moan. Next came the feeling of reaching bottom, followed by an upward swoop, and then the Mouser broke out of the mist into the purple-yellow day and skidded into a soft snow-bank and began to laugh wildly with relief. It was some moments before he noticed that Fafhrd, also shaking with laughter, was likewise half buried in the snow beside him.

When Fafhrd looked at the Mouser, the latter shrugged inquiringly at the mist behind them. The Northerner nodded confirmingly.

"The last priest dead. None to go!" the Mouser proclaimed happily, stretching in the snow as if it were a featherbed. His chief idea was to find the nearest cave—he was sure there would be one—and enjoy a great rest.

But Fafhrd turned out to be full of other ideas and a seething energy. Nothing must do but they must press on swiftly until dusk, and he presented to the Mouser such alluring

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pictures of getting out of the Cold Waste by tomorrow, or even nightfall, that the small man soon found himself trotting along after the big one, though he couldn't help wondering from time to time how Fafhrd could be so supremely sure of his direction in this chaos of ice, snow, and churning unpleasantly-tinted clouds. The *whole* Cold Waste couldn't have been his playground, surely, the Mouser asked himself, with an inward shudder at Fafhrd's notion of proper places to play.

Twilight overtook them before they reached the forests Fafhrd had promised, and at the Mouser's urgent insistence they began to hunt for a place to pass the night. This time a cave wasn't so easily come by. It was quite dark before Fafhrd spotting a rocky notch with a clump of stunted trees growing in front of it that promised at least fuel and passable shelter.

However, it appeared that the wood would hardly be needed, for just short of the tree-clump was a black rock outcropping resembling the one that had given them coal last night.

But just as Fafhrd joyfully lifted his ax, the outcropping came to life and lunged at his belly with a dagger.

Only Fafhrd's exhuberant and undiminished energy saved his life. He arched his belly aside with a supple swiftness that amazed even the Mouser, and drove the ax deep into his attacker's head. The squat black body thrashed its limbs convulsively and swiftly grew stiff. Fafhrd's deep laughter rumbled like thunder. "Shall we call him the none black priest, Mouser?" he inquired.

But the Mouser saw no cause for amusement. All his uneasiness returned. If they had missed their count on one of the black priests—say the one who had spun down in the snowball or the one supposedly slain in the mist—why mightn't they have missed their count on another? Besides, how could they have been so convinced, simply from an ancient inscription, that there had been only seven black priests? And once you admitted there might have been eight, why mightn't there be nine, or ten, or twenty?

However, Fafhrd merely chuckled at these worries and chopped wood and built a roaring fire in the rocky-notch. And although the Mouser knew the fire would advertise their presence for miles around, he was so grateful for its warmth that he found himself unable to criticize Fafhrd at all severely. And when they had warmed and eaten their roast meat from the morning, such a delicious tiredness came over the Mouser that he tucked his cloak around him and headed straight for sleep. However, Fafhrd chose that moment to drag out and inspect by firelight the diamond eye, which made the Mouser open his own a slit.

This time Fafhrd did not seem inclined to go into a trance. He grinned in a lively and greedy fashion as he turned the gem this way and that, as though to admire the beams flashing from it while mentally appraising its value in square Lank-

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hmarian goldpieces.

Although reassured, the Mouser was annoyed. "Put it away, Fafhrd," he snapped sleepily.

Fafhrd stopped turning the gem and one of its beams blinked directly at the Mouser. The latter shivered, for he had for a moment the sharp conviction that the gem was looking at him with evil intelligence.

But Fafhrd obediently tucked the gem away with a laugh-and-a-yawn and cloaked himself up for sleep. Gradually the Mouser's eerie feelings and realistic fears were both lulled as he watched the dancing flames, and he drowsed off.

The Mouser's next conscious sensations were of being tossed roughly down onto thick grass that felt unpleasantly like fur. His head ached splittingly and there was a pulsing yellow-purple glow, shot through with blinding gleams. It was a few moments before he realized that all these lights were outside his skull rather than inside it.

He lifted his head to look around, and agonizing pain shot through it. However, he persisted and shortly found out where he was.

He was lying on the hillocky, dark-vegetated shore across the acid-seeming lake from the green hill. The night sky was alive with Northern Lights, while from the mouthlike slit —now open wider—in the green hill's pinkish top, a red-litten smoke came in puffs like a man eagerly panting and heaving. All the hill's green flank-faces seemed monstrously alive in the mixed lights, their mouths twitching and their eyes flashing—as if every one of them held an eye-diamond. While only a few feet away from the Mouser, Fafhrd stood stiffly behind the stubby pillar of rock, which was indeed a carved altar of some sort, topped by a great bowl. The Northerner was chanting something in a grunty language the Mouser didn't know and had never heard Fafhrd use.

The Mouser struggled to a sitting position. Gingerly feeling his skull, he found a large lump over his right ear. At the same time Fafhrd struck sparks—apparently with stone and steel—above the bowl, and a pillar of purple flame shot up from it, and the Mouser saw that Fafhrd's eyes were tight shut and that in his hand he held the diamond eye.

Then the Mouser realized that the diamond eye had been far wiser than the black priests, who had served its mountain-idol. They, like many priests, had been much too fanatical and not nearly as clever as the god they served. While they had sought to rescue the filched eye and destroy the blasphemous thieves who had stolen it, the eye had taken care of itself very nicely. It had enchanted Fafhrd and deceived him into taking a circling course that would lead him and the Mouser back to the vengeful green hill. It had even speeded up the last stage of the journey, forcing Fafhrd to move by night, carrying the Mouser with him after prudently stunning him in his sleep with a dangerously heavy blow.

Also, the diamond eye must have

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been more foresighted and purposeful than its priests. It must have some important end in view, over and beyond that of getting itself returned to its mountain-idol. Otherwise, why should it have instructed Fafhrd to preserve the Mouser carefully and bring him along? The diamond eye must have some use for both of them. Through the Mouser's aching brain reverberated the phrase he remembered Fafhrd muttering two nights before: "But it needs the blood of heroes before it can shape itself into the form of man."

As all these thoughts were seething painfully in the Mouser's brain, he saw Fafhrd coming toward him with diamond eye in one hand and drawn longsword in the other, but a winning smile on his blind face.

"Come, Mouser," Fafhrd said gently, "It is time we crossed the lake and climbed the hill and received the kiss and sweet suck of the topmost lips and mingled our blood with the hot blood of earth. In that way we will live on in the stony rock-giants about to be born, and know with them the joy of crushing cities and trampling armies and stamping on all cultivated fields."

These mad phrases stung the Mouser into action, unintimidated by the pulsing lights of sky and hill. He jerked Scalpel from its scabbard and sprang at Fafhrd, engaging the longsword and making a particularly clever, disarming thrust-and-twist guaranteed to send the longsword spinning from Fafhrd's hand—especially since the Northerner still had his eyes closed tight.

Instead, Fafhrd's heavy blade evaded the Mouser's swift one as easily as one avoids a baby's slap, and, smiling sorrowfully, sent a rippling thrust at the Mouser's throat that the latter could escape only with the most fantastic and frantic of backward leaps.

The leap took him in the direction of the lake. Instantly Fafhrd closed in, attacking with scornful poise. His large face was a mask of blond contempt. His far heavier sword moved as deftly as Scalpel, eaving a gleaming arabesque of attack that forced the Mouser back, back, back.

And all the while Fafhrd's stayed tight shut. Only when driven to the brink of the lake did the Mouser realize the reason. The diamond eye in Fafhrd's left hand was doing all the seeing for the Northerner. It followed every movement of Scalpel with a snaky intentness.

So, as he danced on the slippery black rim above the wildly-reflecting lake, with the skies throbbing yellow-purple above him and the green hill panting behind, the Mouser suddenly ignored Fafhrd's threatening blade and ducked and slashed unexpectedly at the diamond eye.

Fafhrd's cut whistled a finger's breadth above the Mouser's head.

The diamond eye, struck by Scalpel, exploded in a white burst.

The black furry ground beneath their feet heaved as if in despairing torment.

The green hill erupted with a vindictive blast that sent the Mouser

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staggering and that shot a gush of molten rock twice the hill's height toward the bruised night-sky.

The Mouser grabbed hold of his bewilderingly-staring companion and rushed him away from the green hill and the lake.

A dozen heart-beats after they left the spot, the column of molten rock drenched down on the altar and splashed wide. Some of the molten gouts came even as far as the Mouser and Fafhrd, shooting fiery darts over their shoulders as they scampered. One or two gouts hit and the Mouser had to beat out a small fire they started in Fafhrd's cloak.

Looking back as he ran, the Mouser got a last glimpse of the green hill. Although still spouting fire, it seemed otherwise very solid and still, as though all its potentialities for life were vanished for a time, or forever.

When they finally stopped running, Fafhrd looked stupidly down at his left hand and said, "Mouser, I've cut my thumb. It's bleeding."

"So's the green hill," the Mouser commented, looking back. "And bleeding to death, I'm happy to say."

THE END

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LETTERS

CLARK PUBLISHING COMPANY, 806 DEMPSTER STREET, EVANSTON, ILLINOIS

:ob Wilderman

For the last six months I have wanted to write a letter to a stf. mag, but I never got up the guts to do it. Well, your last issue did it. I have just inished reading "Somewhere A Voice" by Eric Frank Russell. In my three short years as a fan of stf. stories, I have never read a better one. This story should be recommended to those standbys who think stf is senseless trash. Thinking the story over afterward, the idea came to me that the main plot could have happened just as well with a plane crash in the Brazilian jungles.

I haven't yet read the rest of the issue, but if it turns out to be as good as the first story, I will realize right away what I have been missing by not getting OTHER WORLDS steadily.

4219 North 21st St.,
St. Louis, Mo.

Bob, everybody reacts to Russell that way. And we're glad you've discovered us right now, because we've got the best stories we've ever seen come up in bunches in all our editorial career. It's almost amazing how much improvement there has been in the past few months. Recently we bought a new novel by John Bloodstone (who was discovered by Howard Browne of Amazing Stories) which has us pretty excited. We also bought several "Hoka" stories by Anderson and Dickson which are the funniest science fiction we've read in years. S. J. Byrne's novel beginning in this issue is a tremendous thing, in length as well as concept. It will be a novel you'll long remember. Jack Williamson has done us a story he ought to be proud of—and we know he is. And old-timer Robert Moore Williams has sold us "Battle In The Sky" which is going to stack right up with his best work—and he's been writing for this editor since 1938, and for everybody else for almost as long. You might say he's one of the all-time prolific writers, but by golly, he gets better by the year! Oh, there's more, but we'll keep a few secrets.—Rap.

Lee Huddleston

OW is no longer circulated on the stands here and I wouldn't have knowledge of it if a friend hadn't sent me the December issue. It is the mistake on page 141 that makes me write . . . ". . . Heligoland, off the coast of Germany, which he said closely fits a description by Plato . . ." Spanush isn't very much of a scientist. I'm not sure when Plato lived, but it was B.C. If the island he de-

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scribed resembled Heligoland of today, it could NOT have been Heligoland. The reason is very simple. The Heligoland of today is a very small fraction of its former self. In 800 A.D. it had a circumference of 120 miles. By 1649 it had already been reduced to only 8 miles in circumference. Consult R. S. Tarr's "New Physical Geography," page 207.

Why is it that when *Madge* gets better, it's following in the steps of OW, but when OW gets worse, it's following in the steps of *Madge?*

Why isn't OW circulated here?

Route 1,
Baird, Texas

We'll answer your last question first: We don't know. But it may be that the American News Company, our distributor, does not cover your area. There are hundreds of thousands of newsstands in the country, and if we placed one copy on each stand, there would be hundreds of thousands still without any OW—because we couldn't possibly print enough to do that. But we will see if we can get OW into Baird for you. About Spanush, we only quoted him. We didn't say he was right. But you raise an interesting point. We wonder if anybody, Spanush included, can clear up this Plato reference to Heligoland? Now your other question: We recently talked to Mr. Hamling, editor of Madge, and he says he is constantly improving the magazine. And we feel sure he has. Therefore, if we are following her steps, it isn't for the worse. Actually, what makes you ask such a paradoxical question? We weren't aware that such was happening. Personally, we regard ourselves as Mr. Hamling's mentor, as we bought his first story, discovered him as an editor, and got him started as a publisher. If you mean there is rivalry between us, it's true. We constantly try to outdo the other. To date, we've introduced Mr. Hamling to everything, including his wife. So, we'd say, rather slyly, that we have yet to follow either Mr. Hamling or Madge. But don't mistake it, he's a great guy!—Rap.

Oran Dean Gough

I join with the great majority of fans, I am sure, when I say I agree wholeheartedly with your views as expressed in your reply to Mr. Donald Wilson.

63 Beresford Ave.,
Highland Park 2, Mich.

Bobby G. Warner

Ah, the letter column is jumping today. You know, I thought Don Wilson's (the radio announcer?) letter was the most well-expressed and sincere in the entire column. I thought for a time that he was just going to bawl you out seven ways to heck and leave it be at that. Instead, he gave a good report of his feelings toward your mag and mine, and didn't make a fool of himself at all. I admire the guy. And your reply floored me. I've always been of the opinion that to sell a manuscript you had to be completely conversant with the field, a perfect student of grammar,

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a fiend at plotting—in short, a literary genius and a perfect typist. Your talk has made me see editing—your part of it, at least—in an altogether new light.

This fellow Temple can certainly throw together a nice story. From the way this one reads, he must have pieced it together on a shell-splattered battlefield. I'm about a third of the way through the thing and it's going blue blazes. Hope this keeps up. Do we get more Temple? And more of that other English worthy, Russell? His "Somewhere A Voice" stunned me. Now THAT is my type of story. It had fine character development—a thing lacking so sadly in too many of our present-day stf pieces.

What did you have to do to Wolheim to get that little gem, "Disguise"? Or did he give it voluntarily?

P.O. Box 63,
Bessmay, Texas

Yes, you get more Temple, and more Russell. And Wolheim happens to have Forrie Ackerman as his agent, so that's how we got the yarn. Nice, wasn't it? Forrie's a mighty energetic agent.—Rap.

Marilyn Shrewsbury

Just got the February issue of OW and couldn't resist the temptation to write you. Not about the stories, but about a letter by a certain Don Wilson. Mr. Wilson may expect a package of quick-acting poison by the next Pony Express. Not only does this character condemn my favorite mag, but my favorite stories, my favorite authors and makes dishonorable mention of my favorite editor. Typewriter ribbons at twenty paces, Mr. Wilson. Put up, or shut up, preferably the latter.

Box 1296
Aransas Pass, Texas

Okay, here's Mr. Wilson in a reply. Maybe you won't feel so badly toward him when you've read what he has to say.—Rap.

Charlie Jarvis

This is the first fan letter I have written to your mag but I think that OW is doing an outstanding job. Keep the editorials coming as good as they have been, as they are not only entertaining but also thought provoking in places. The back covers so far have been interesting and good but I think the best one I have seen yet is the back cover of the January issue by Bok. In this cover the color contrast and general color scheme was stupendously superb. Ah, but I'm wandering again. To get back to the facts of the Jan. issue I would like to point out that your editorial was as usual the best I've seen anywhere.

My analysis of the stories is probably disappointing but to me that is how they seem. "Somewhere A Voice," by Eric Frank Russell was a wonderful story but, can you tell me the point in carrying a dead man when he could have made better time without him? But, all in all, I think it was a typical Russell story. "Fast passage," by H. B. Fyfe, was pretty interesting but I think it was mis-

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named because I don't think that traveling without gravs is the fastest method that I can think of. "Lost Continents IV," by L. Sprague de Camp, was pretty good but after a while I think that they sort of wear out their luster. "Beyond the Barrier," Richard S. Shaver was typical of Shaver which is an all time-high. Be sure to let me know when "The Shaver Mystery" is published as I want to get one before you're all sold out. I think that your Man From Tomorrow was sort of misled and not quite up to par. You see, I'm a firm believer that we are not the only intelligence in the universe but I also hope that we're the exception and not the rule. To my way of thinking, the human race is the stupidest, most imbecilic, idiotically poor excuses for existence there is. We had better give up our ideas for peace for as long as one person is alive on Earth, PEACE IS DOOMED TO FAILURE.

Route No. 2, Box 467,
Valley Falls, R. I.

The point in carrying a dead man is he was out of his head and didn't know he was carrying a dead man. Remember where the "dead" man talked to him, when it was obvious he was dead? And how he answered? As for what is the fastest type of travel in space, you have us there. Shaver says a cap pistol will move a ship, and Willy Ley says it will take a veritable atom pile or something equally potent to move it. And Einstein says it won't go faster than light, and our writers keep on travel-

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ng at many times light speed. Take your choice. You are taking a dim view of man, aren't you? I'd agree, except I paid a visit to Heaven once, and it was a great improvement! Lots of people believe Heaven is right here on Earth, and lots of live people in it. Do you mean peace, or progress? War is the cause of peace. No peace without it. Besides, who'd wreck the slums if the warlords didn't do it? But I'm kidding you. Actually, who's smart enough to know whether man will achieve the ability to live with his fellow man?—Rap.

John Loeb

I disagree with Eddie West, Jr.'s letter panning the recent science fiction issue of the Industrial Worker.

As far as I know, no anti-capitalist plans to "exploit" science fiction fans' open mindedness. Anti-capitalists are against "exploiting" anyone, as I understand it. But some fans, at least, are already anti-capitalist — they don't need anyone to pursuade them to become that way. I myself am a believer in revolutionary industrial unionism—I think it's real anti-capitalist democracy. It means workers would own and operate their own industries.

But regardless of personal opinions, the fact is that science fiction is modern and advanced and so are the democratic forms of radicalism.

As for the science fiction feature in the Industrial Worker, I thought it was excellent.

West seems to think the U. S. isn't becoming a militarist super-State. There's no danger of State-ism, apparently, according to West.

And another thing: Rap, you said in commenting on West's letter, that we shouldn't worry about Communists breaking into science fiction. Of course there's no danger of that . . . and it's correct to oppose Red baiting . . . but some one might get the wrong idea that the Industrial Worker is Communist. Of course it's not. It's completely anti-Communist. The Industrial Worker, published at 2422 N. Halsted St., Chicago, Ill., by the Industrial Workers of the World (IWW), always has opposed Stalinism as well as capitalism.

Incidentally, the Industrial Worker is considered the best labor paper in America.

147 W. 55th St.,
New York, N. Y.

It was always my opinion that the IWW was a part of the American way of life, which seems to be termed "capitalism." But no matter, it's a labor union and its members draw salary checks and pay taxes. As for the Industrial Worker, never read it. But if it's anti-capitalist, science fiction is no subject for its pages—if you were a science fiction publisher, you'd find out there's darned little capital! We don't make much money, but we do have fun.—Rap.

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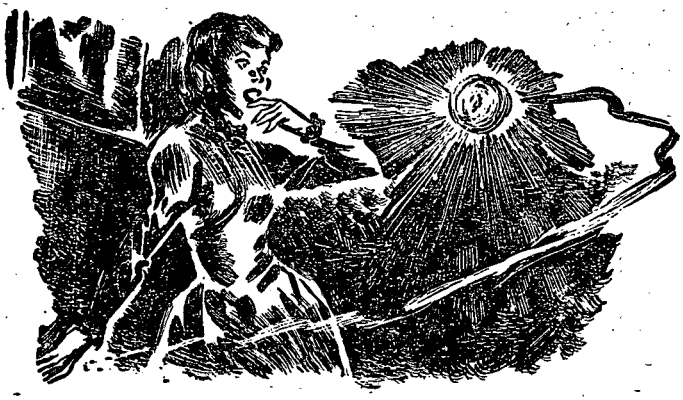

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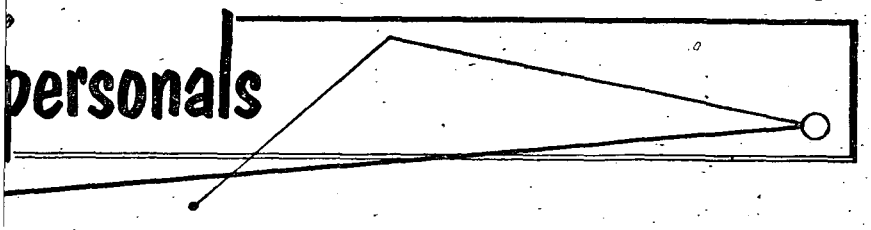

Have complete collection of "Journal of the American Rocket Society" (with one exception) from May 1942 to July-Aug '52; 38 issues at 75c each. Prefer to sell as lot, but will sell singly. Richard E. Gardner, 2704 N. 7th St, Harrisburg, Pa. . . . *Will sell or trade: "Man Who Sold the Moon," "The Metal Monster," "San Quentin Story," "Moon Pool," "Demon Caravan," "Into Plutonian Depths," "Beyond the End of Time." " The Alien," "Rat Race," and others; also: Avon S-F*—1, 2 & 3; *Fantasy* 16, 17 & 18; *Galaxy—Aug-Dec* '51, *Jan, Feb, May & Sept* '52; *Imagination—Sept & Nov* '51, *Jan, Mar & July* '52; *Worlds Beyond, Feb* '51; *Marvel, Nov* '51; *aSF—Mar to Dec* '51, *Jan to Aug* '52; *OW—Oct to Dec* '51, *Jan, Mar, Apr, July, Aug* '52. *All in good condition, most good as new. Bradley Johnson,* 510 17*th St, Charlottesville, Va* . . . For sale: collection of hundreds of stf zines. Send stamped self-addressed envelope for price list. Hillel Handloff, 37 S Delancey Pl, Atlantic City, N. J. . . . *Ron Maddox,* 1745 *L St, N. W., Washington, D. C. has a good many back issue dupes which he wants to dispose of; also has gaps in his collection he wants to fill. Will exchange want lists* . . . Wanted: Jan & July '52 SS; Galaxy novels 5, 6, 7 & 8. For sale or trade: Sum & Sept FSM '52 and 1952 Wonder Story Annual. Wayne Fehr, 3320 Carlisle Ave, Covington, Ky . . . *Wanted: Back issues of EC comic mags, The Haunt of Fear, Tales From the Crypt, The Vault of Horror, Weird Science, Weird Fantasy, Crime Suspenstories, Shock Suspenstories, Frontline Combat and Two-Fisted Tales. Naaman Peterson,* 1471 *Marine Drive, Bellingham, Wash* . . . Moses C. Tribble, Rt 1, Box 62A, Sutter Creek, Calif wants to hear from anyone anywhere, either pro or non-pro, who has any interest in or theories about flying saucers . . . *All stf fans in the state of Missouri interested in forming a state-wide fan club, please write me. Paul Mittelbuscher, Sweet Springs, Mo* . . . I want back issues of Weird Science and Weird Fantasy comic books. Also, stf PBs and small size stf mags. Ed Monk, 2204 Ewing Ave, Evanston, Ill. . . *Would like to buy, trade or sell old and recent copies of AS, aSF, CF, FA, FSM, Future, SFQ, PS, SS, SSS, TWS, F&SF, OW, Galaxy, Madge, Wonder Stories, Science Wonder Stories, Air Wonder Stories, TCSAB, If, & Marvel. Send request for and/or information with stamped addressed envelope to James Brook,*

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11 *Cranburry St, Brooklyn 2, NY* . . . Wonder, Astounding and Amazing from 1928 thru 1936 for sale; 25c for monthlies, 50c for quarterlies. Good condit, except that covers are reinforced with heavy cardboard. Send 3c stamp for list or send want list. Will dig out mags with stories by one particular author for "favorite author" collectors. Ron D. Rentz, 130 Vera St, West Hartford 7, Conn . . . *Want back copies of AS, aSF, FFM, FN and many others. Condition not important, need not have covers. All lists will be answered. Howard Moss,* 1612 *S Redondo Blvd, Los Angeles* 19, *Calif* . . . Wanted: aSF—all issues '44, Jan Feb Mar Apr June Aug Nov & Dec '45, all '46 but Feb & Nov, Jan thru June, Aug Sept & Oct '47. "Sixth Column," "Divide and Rule," "The Undesired Princess," "Lest Darkness Fall," "Final Blackout," "Gather Darkness," "Of Worlds Beyond," "Beyond This Horizon." Will sell or trade: "Imagination Unlimited," "Darker Than You Think," "From Off this World," "Lodestar," and many back issues of AS and FA. Peter Birrell, 2610 E Fifth St, Tucson, Ariz . . . *Richard Field, 2263 Commonwealth Ave, St Paul 8, Minn. will pay 20c each for Walt Disney's Comics and Stories No.* 1-50. *Would also like to contact fans in the Twin Cities. Will pay reasonable prices for good condition copies of AS and Wonder Stories* 1926-1933. *Send stamped envelope and prices* . . . Paul Robbins, 8579 Whitworth, Los Angeles, Calif. wants to buy OW No. 1 thru 8 . . . . *Wanted desperately: First 4 OW, all issues of A. Merritt's Fantasy, any pre* '51 *stf zines. Especially want any SS, PS and Marvel. Write giving dates and condition of mags. Burnice Love,* 900 *E Boise Ave, Boise, Idaho* . . . Save money. Order all new stf books thru Fantasy & Science-Fiction Book Club, 130 Vera St, West Hartford 7, Conn. We give big reductions on ALL new stf titles in print. We are a non-profit fan organization. Write for more information . . . *For sale or trade: Marvel S-F, Vol* 3, *No.* 4; *F&SF No.* 4; *aSF, Mar thru June* '46, *Aug* '49, *June & July* '51; *TWS, June* '51; *SS, May* '49 *(no covers). Also numerous stf PBs. Want: back issues of Madge, OW and Galaxy. Would like to contact stf fans in Wichita. James Winters,* 4592 *Juniper, Wichita, Kansas* . . . . For sale: "Best Stf Stories—1949," "Beyond Time and Space," "Needle," "Pebble in the Sky," "The Last Space Ship," "The Day of the Triffids," "Return of Tarzan," "Tarzan the Terrible," first edition of "Tarzan and the Jewels of Opar" in very good condition, no d/w. Also fantasy, detective, historical, western, spy and adventure novels for sale, including Hemingway's "Across the River and into the Trees" and other best sellers. All stf in excellent or mint condition. Carbee E. Roache, 46 Cottage St, Littleton, N H . . . *For sale: E. R. Burroughs' "Pellucidar"*—$3; *"The Land that Time Forgot"*—$3.50; *"The Moon Maid"*—$3; *"The Monster Men"*—$2.50; *"The Mucker"*—$2.50. *Also wish to sell as a group FA from Dec* '47 *to*

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Dec. '50—*Nov '50 missing—all in good condition except Sept '49 has over torn;* $7.50 *for the lot. AS May 49 to April '50; all in good shape;* $5.00. *PS Winter '48 to Spring '50;* $1.50. *Single copies of SS, TWS and SSS at 25c each. I will pay postage. David Warfield,* 5223 *Catalina, Kansas City* 3, *Kans .*

THE END

Editorial

Continued from page 5)

on his face? Who are those gryphons, if they ain't just gryphons—and what in heck is a gryphon anyway? You don't have to give us a story, a plot, on an idea. Just write about this illustration and how it strikes you. Be funny, if you wish. Be serious. Be anything. But don't be overlong—it'll bring down your word rate if you win! The address is *Editorial Contest,* OTHER WORLDS, 806 Dempster, Evanston, Illinois. Closing date? Well, how about June 1st.

Our back cover this month illustrates a story by Fritz Leiber, called "The Seven Black Priests." There's a story here, too. Bob Jones did this little cover as a complimentary sketch and presented it to Richard Shaver. We happened to see it, and envisioned it on our back cover. And because we now have a policy of having the back cover illustrate a story whenever possible, we asked Fritz to do the story. We think you'll like the business of having two covers and two cover stories on OTHER WORLDS.

The front cover, illustrating "Power Metal" is another space ship by Malcolm Smith. We think it's one of the best he's ever done, and shows once more that Smith is the one and only space ship man.

An item of interest to you fans; did you know that Chester S. Geier is the managing editor of FATE, our sister magazine? And did you know that he became a daddy again on Jan. 7 (another girl)? Well, it's a funny situation, here Chet works right in our office, and we can't get any fiction out of him.

Listen to the following quotes:

"Thousands of tons of mud and rock from the sea bottom were thrown many thousands of feet in the air, and a high tidal wave was caused. The effects of the blast and radioactive contamination extended over a wide area. The battleship was vaporized except for some red hot fragments which were scattered over one of the islands and started fires in the dry vegetation. The temperature was nearly 1,000,000 degrees, in contrast with the melting point of granite,

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1,740 degrees; and the molten lav in a volcano, between 1,290 an 2,190 degrees."

"A two-mile wide flame shot fiv miles high, the light flash equallin that of ten suns. The whole islan burned brilliant red and then disap peared."

Can you guess which science fictio stories these quotes are from? Wrong no story! The first is Winsto Churchill's description before Parlia ment of the British atom bomb o the Monte Bello islands off Austral ia; the second is an eyewitness de scription of the U. S. H-bomb set o on November 1 in the Pacific. Atom explosions in fiction in past years were minor "pops" compared to reali ty—the authors' imaginations jus weren't vivid enough!

Now, what does all this mean? They are building such bombs. They are trying to invent even worse ones And who are "they?" You may say they are the benevolent governments of the respective peoples of the world Who will deny that the American gov ernment is benevolent to its people? Then we must conclude that these bombs are for other peoples. We hea that the Russian government (report ed also to be benevolent to its people) is working toward the same ends. The French have just invented a jet that breaks the sonic barrier, so they are not far behind in the race toward gi gantic frightfulness in weapons. Other nations are working toward the big blowup. It is now rumored that atomic bombs can be made by a new method which makes a bomb cheaper

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ian a medium tank, and much simler to operate.

Each government says it is working n these things to protect itself gainst the other. Or, most of the nes who report to us say, against the Russians. We don't know what the Russians report to their people. But e can guess. Anyway, a lot of beevolence is going to spill over one of hese days, and WHO is going to get urt?

But take heart, it won't hurt! It oesn't hurt to be vaporized in 1,000,-00 degrees. You just don't have time o hurt. At last we have a really bevolent weapon. Now war can go forvard without qualms. Nobody gets urt!

But underneath all this armament strange whisper is coming up, the REAL reason for it all. With dire persistence we are being warned (and wholly falsely) that population is increasing so fast that there is only one answer. Either we must cut it down, or STARVE. And starving is slow, painful, agonizing. We *wouldn't* want o starve. But we make you a bet, "they" intend neither to vaporize or starve! Only, who is "they?"

Certainly we can ALL see that this gigantic weapons race can't do any of us any good. Then who is it that CAN'T see, and is urging us on? *Is* it Stalin? Is it Truman (Eisenhower)? Is it Churchill? Is it De Gaule? Is it Queen Elizabeth? Or Wall Street? Or those nasty Munitions Makers?

No, it isn't. It's us. *We* little, nasty, selfish people. We who are eating strawberries and cream and angel-food cake! We, the people with the HIGH standards of living we refuse to share with the LOW! We, the high-salaried (whose taxes PAY for these weapons)! *We* are "they!" *All* the people in *all* the nations who have more than our fair share.

No matter where you live in the world, under what government, YOU are the culprit. And if you don't STOP, you'll deserve every one of those 1,000,000 degrees!

But do you know, you WON'T stop until the explosions begin. Then, suddenly, you'll realize that you'll have to work TOGETHER, all mankind, to stop it. You'll ALL refuse to pay for any more weapons, work in any more war factories, hog the strawberries and cream for your own table. But you know *now* it won't work, unless *everybody* does it—so *you* won't do it. No American will "turn traitor" because it will be just what the Russians want, and when you lie down, they'll walk in. No Russian will turn either, because he'll know that's just what WE are waiting for, and we'll walk in on him.

Maybe the proudest and most civilized race in Earth's 70,000 years of civilizations will be the one that finally lies down and lets the enemy walk in.

Remember the kid you couldn't hit because he wouldn't defend himself? You called him yellow then. Today we'd call him subversive. But just the same, he DIDN'T GET HIT!

And neither would we!

But what's the use; nobody will listen.—*Rap.*

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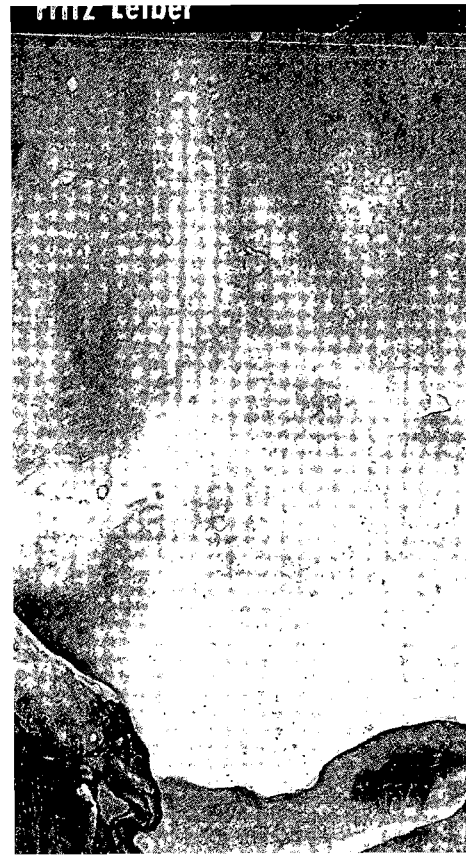

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